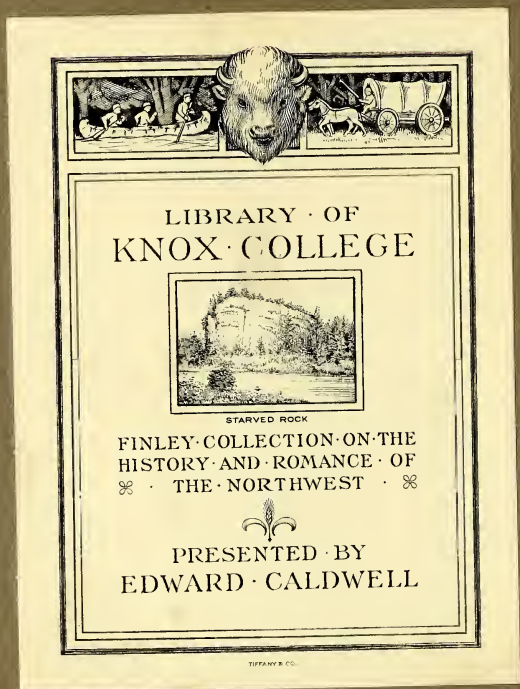


Documents relating to  
Internal Improvements  
in the  
State of Illinois

Washington

1836



*Documents relating to Internal Improvement in the  
State of Illinois 1836 – folding map at page 28*

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DOCUMENTS

IN RELATION TO

INTERNAL IMPROVEMENTS,

*In the State of Illinois.*

MARCH 5, 1838.

Submitted by Mr. Young, and ordered to be printed, and that 300 additional copies be furnished for the use of the Senate.

*An act to establish and maintain a general system of internal improvement, with supplementary acts: passed at a General Assembly of the State of Illinois, begun and held at Vandalia, on the 5th December, 1836.*

SEC. 1. *Be it enacted by the people of the State of Illinois, represented in the General Assembly, That* there shall be elected by the joint vote of the present General Assembly, and biennially thereafter, a board of fund commissioners, to consist of three members, who shall be practical and experienced financiers, and whose terms of office therein shall expire biennially, and who shall be eligible to re-election. Each member of the board, before entering into the discharge of the duties of his office, shall severally take and subscribe an oath or affirmation, faithfully, honestly, and diligently to discharge the duties of his said office, and shall execute a bond to the Governor, and his successors in office, for the use of the State, in the penal sum of fifty thousand dollars, with good and sufficient security, to be approved by the Governor or the person administering the Government, conditioned for the faithful discharge of the duties of his office, imposed upon him, or thereafter to be imposed upon him, by law; and for the faithful accounting for all moneys that shall or may come into his hands as fund commissioner; and all vacancies which may occur in the board of fund commissioners during the recess of the Legislature, shall be filled by appointment by the Governor, which appointments shall continue until the end of the next session of the General Assembly, and until their successors are elected and qualified, and who shall give bond and take an oath in the same manner as is required by the foregoing part of this section of other commissioners.

SEC. 2. A majority of the board of fund commissioners shall constitute a quorum for the transaction of business; and it shall be the duty of the said board of fund commissions to contract for and negotiate all loans authorized to be effected by the Legislature, on the faith and credit of the State, for objects of internal improvements or other purposes, unless otherwise provided for, on the best and most favorable terms for the interests of the State; and shall sign and execute bonds or certificates of stock therefor, in the

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manner directed by law ; and shall receive, manage, deposite, and apply all sums of moneys arising from said loans, in such manner as shall, from time to time, be provided for by law ; and shall make quarterly reports to the auditor of public accounts, or to such other authority as the Legislature may direct, on the first Mondays of March, June, September, and December, annually, of all the proceedings of the said board.

SEC. 3. The board of fund commissioners shall keep a fair and complete record of all their proceedings, together with a full, minute and accurate account of all their fiscal transactions as commissioners, with a record of all official letters and correspondence, written and received in relation to the subject of their duties as fund commissioners, in well bound books, to be provided for the purpose ; which records shall at all times be open at their office to the inspection of the Governor, the auditor of public accounts, the attorney general, and to any member of the General Assembly. In order to enable the board to keep said record, they are hereby authorized to appoint a secretary of the board, whenever, in their opinion, the business of the board may render it necessary ; which secretary, before entering upon the discharge of his duties, shall be required to take an oath or affirmation, faithfully and diligently to perform the duties of his appointment, and shall enter into bond to the Governor of the State, and his successors in office, for the use of the State, in such penal sum, and with such securities as the board may by an order direct, conditioned for the faithful and diligent discharge of his duties, as secretary of the board of fund commissioners, and for the safe keeping of all books, vouchers, and papers, which may come to his hands as secretary as aforesaid. The members of the board of fund commissioners shall each be entitled to receive, as a full compensation for their services, at the rate of five dollars per day, for each and every day they may be necessarily employed in the discharge of their duties. And the board may allow to the secretary of the board such compensation for his services as they may deem reasonable and just.

SEC. 4. That for the purpose of promoting and maintaining a general system of internal improvement in this State, and of uniting its various branches under the same supervision and direction, (excepting the construction of the Illinois and Michigan canal,) there shall be created a board of public works, to consist of seven members, one from each judicial circuit, to be elected biennially by the joint vote of the General Assembly, and who shall be styled "The Board of Commissioners of Public Works," who shall continue in office for two years, and until their successors are elected and qualified, but who shall be eligible to be re-elected. Any vacancy which may occur in the board by death, refusal to act, resignation, removal out of the State, or otherwise, shall be filled by an appointment by the Governor, which appointment shall expire at the end of the next session of the General Assembly; and the incumbent thus appointed shall take the like oath of office, and enter into the like bond, as is required of the members elected by the Legislature, before he shall enter into the discharge of his duties as one of said commissioners.

SEC. 5. Each of the members of the board of commissioners of public works, previously to entering into the discharge of the duties of their offices, respectively, shall take and subscribe an oath or affirmation, faithfully, honestly, impartially, and diligently to discharge the duties of his office; and shall execute a bond to the Governor, and his successors in office, for the use of the State of Illinois, in the penal sum of twenty thousand dol-



tars, with two or more good and sufficient securities, to be approved of by the Governor, or person administering the Government of the State, conditioned for the faithful, honest, impartial, and diligent discharge of the duties of his office, as one of the commissioners of the board of commissioners of public works, and for the faithful disbursement of, and accounting for, all moneys intrusted to him as one of said commissioners; and no commissioner shall be allowed to have in his hands, at any one time, more than twenty thousand dollars; and every sum advanced to, or received by him, shall be deemed to remain in his hands until its application shall have been properly accounted for by the necessary vouchers, to be filed with, and audited by, the board of fund commissioners, or such other authority as may be, from time to time, directed by the Legislature to examine and audit said vouchers.

SEC. 6. The members of the said board of public works, after having been qualified, and having executed bonds in the manner hereinbefore directed, shall, on or as soon as convenient before the first Monday in April, next ensuing their election, hold their first meeting at the seat of Government, and organize the board by electing one of their number to be the president of the said board; and by appointing a secretary of the board, who, before entering into the discharge of the duties of his appointment, shall take an oath or affirmation faithfully and truly to discharge his duties as secretary of the board of commissioners of public works, and shall enter into bond to the Governor, and his successors in office, for the use of the State, in such penal sum, and with such security, as the board shall order and direct, conditioned for the faithful, true, and diligent discharge of his duties as said secretary, which may devolve upon him by law, or under the directions, resolutions, and orders of the board.

SEC. 7. The board of commissioners of public works, when organized and constituted as aforesaid, shall be authorized to locate, superintend, direct, and construct, on the part and behalf of this State, all works of internal improvements which have been, or shall be, authorized to be undertaken, prosecuted, and constructed by the State, either in whole or in part, (excepting the Illinois and Michigan canal,) and the charge and superintendence of all such internal improvements, excepting as aforesaid, shall be vested in said board; and the said board of commissioners of public works shall do and perform such services and duties as may, from time to time, be imposed upon the said board by law. The said board shall hold semi-annual meetings on the first Mondays of June and December, in each and every year, at the seat of Government of this State; and the said board shall have authority to choose a president *pro tempore*, in the absence of the president, at any meeting of the board, and to adjourn, from time to time, to meet at any other place they may think proper; and the president shall have power to call special meetings of the board when, in his opinion, the public interests may require it. Three of the members shall constitute a quorum for the transaction of business, at any stated or special meeting of the board, when convened under the authority aforesaid. Each of the members of the board shall be allowed to receive, as a compensation for their services, the sum of five dollars per day, for every day necessarily employed in the discharge of their duties; and they shall and may allow to the secretary of the board, as a compensation for his services, such sum as they may think reasonable and just. And the acting commissioner for the fourth judicial circuit shall cause to be surveyed a route commencing at

Charleston, via the county seat of Clark county, to the most eligible point on the Great Wabash river, between York and the line dividing the States of Indiana and Illinois, and make a report to the next session of the General Assembly, of the utility of the State constructing a railroad on said route, together with an estimate of the probable cost of constructing the same: *Provided, however,* That if, in the opinion of the board of public works, after said survey and estimates have been made, that it would be best calculated to promote the interests of the points above named, and the country through which said road may pass, to build a good turnpike road, then, and in that case, they shall report accordingly.

SEC. 8. In the meetings of the board, they shall determine the general outline of the operations in relation to such works of internal improvements as may be authorized by law, and as either in part or in whole may be placed under their direction and supervision; determining questions of importance submitted to the board by the acting commissioners on the respective lines or works, or by other persons connected with the public works, in relation thereto; and shall examine and audit accounts relating to the expenditures of moneys on the works under their charge and supervision; make estimates of the probable amount of funds which may, from time to time, be required to meet expenditures in the prosecution thereof, and shall enter said estimates at large in a book to be provided for that purpose; and cause authenticated copies thereof to be served on the board of fund commissioners, in due time to enable said fund commissioners to provide the necessary amount of funds to meet the payment of said estimates; and shall, also, at their said meetings, make out the reports of their proceedings, which shall be required by law to be made and filed by them; and shall attend to such other matters and things as shall arise in the discharge of their duties, and as are necessary to be passed upon by the board. The board shall also, at any of their meetings, whenever the progress and situation of the works under their charge shall render it necessary, from time to time, agree upon and assign to the individual members of the board, in special charge, a specific portion or division of the public works in progress; and the member to whom any such specific portion or division shall be assigned, shall superintend the same as acting commissioner thereon, under the general direction and during the pleasure of the board; and shall make detailed reports to the board of his proceedings, at its semi-annual meeting, and as much oftener as is practicable and convenient.

SEC. 9. The board shall cause to be kept in well bound books to be provided for the purpose, a fair and complete record of all the proceedings and doings of the board, and also an accurate and separate account of all the moneys expended by them, in the survey and construction of each respective work under their direction; exhibiting, also, the amounts received by the board, and each and every member thereof, to be applied by them, on the respective works under their direction and supervision; which said books shall at all times be open at the office of the board, to the inspection of the Governor, auditor of public accounts, attorney general, members of the board of fund commissioners, and members of the General Assembly, and to such other authorities as the Legislature may, from time to time, authorize to inspect the same.

SEC. 10. The said board of commissioners of public works shall make, under their hands, semi-annual reports of their proceedings to the Governor,



or person administering the Government, on the first Mondays in June and December, or within thirty days thereafter ; which reports shall contain a detailed statement of their operations and proceedings for the preceding six months, and shall exhibit the amount of moneys received and expended by the board, in the examination and survey of routes and locations of the public works, and in the prosecution and construction thereof, showing specifically the amount expended on each respective work up to that date ; which reports, or an outline thereof, the Governor shall cause to be forthwith published in some newspaper printed and published at the seat of Government ; and shall cause all said reports to be filed in the office of the Secretary of State ; and shall lay a certified copy thereof before the General Assembly, on the first week of their sessions, or as soon thereafter as the same may be received by him. And if the said board shall at any time refuse or neglect to make any semi-annual reports required by this act, or any other reports hereafter required by the Legislature to be made, within the time specified for making the same, the members of the said board so refusing or neglecting to make such reports, shall forever thereafter be ineligible to re-election, and moreover shall be liable to impeachment for misdemeanor in office : *Provided*, That if at any stated meeting of the board, there should not be a quorum in attendance, the minority met may make a report of the facts within their knowledge, relating to the progress of the works and the expenditures thereon ; and the making of such report shall exonerate the said minority from the above penalties : *And provided, also*, That if the absent members are detained from the meeting of the board by sickness, or other causes beyond their control, they also may exonerate themselves from the above penalties by rendering to the Legislature a satisfactory reason for their absence from the board, and failure to join in such report.

SEC. 11. The said board of commissioners of public works shall have power to employ such engineers, agents, superintendents, and other assistants as the interests of the State shall in their opinion demand, to enable them to discharge the duties required of them by law ; and to pay such engineers, agents, superintendents, and assistants such sums as, in their opinion, may be a reasonable compensation for the services they may perform, and to remove said officers at pleasure : *Provided*, That the term of any appointments made by the board shall not extend more than sixty days beyond the expiration of their own term of office ; and the said board shall also have authority to organize their corps of engineers, by the appointment of principal or principals, and subordinates, and assign to each their respective and appropriate charges and duties, in such manner as the said board may deem the interests of the State to demand ; and shall also have authority to purchase and procure such mathematical and other instruments, camps, camp equipage, stationery, supplies, teams, wagons, and other apparatus, and employ so many laborers and assistants, as shall be deemed necessary by them, to insure the correct and efficient discharge of the duties of the engineering department of the public works ; and shall and may provide such offices in which to transact the business of the board and of the engineering department, as they may deem the interest of the State to require.

SEC. 12. The board of commissioners of public works shall cause such examinations and surveys to be made of the several rivers, which may from time to time be directed by law to be improved, to ascertain the nature and extent of the obstructions and impediments to the navigation thereof,



as shall be necessary to enable the board to determine upon and prosecute the most eligible and useful plans of making such improvements; and shall require estimates of the probable costs thereof, under the oath or affirmation of the engineer in charge of making the respective surveys and examinations; and shall also cause minute and accurate examinations and surveys to be made of the proposed routes of all railroads and other contemplated improvements which may from time to time be authorized by law, and placed under the charge, supervision, and direction of the board; and before placing any of the said works under contract, shall require of the engineer or engineers under whose direction and charge the said examinations and surveys were made and executed, respectively, a report of said examination and survey, attested by the oath or affirmation of the said engineer or engineers, describing particularly the localities and nature of the routes of the respective railroads and other improvements; the topography of the country over which it may pass; the facilities for obtaining materials for the construction of the work; with such other information as the engineer may deem to be useful and necessary, or which he may be required to collect and report by an order of the board; which report shall be accompanied with plans and profiles of the route, and of the mechanical structures proposed to be constructed thereon, and specifications of the work to be executed; together with minute estimates of the probable cost thereof; which said reports shall be filed by the secretary of the board, and shall be open to the inspection of all persons desirous of obtaining contracts on the route, during office hours, under such regulations and restrictions as the board may adopt, to preserve the original documents from loss or injury: *Provided*, That the board may exhibit manuscript or printed copies thereof, in lieu of the originals.

SEC. 13. The board of commissioners of public works shall execute the works under their charge and supervision by contract: *Provided, however*, That whenever any job will not admit of such definite specification as to enable contractors to make specific bids for the same, or when jobs are too small and inconsiderable to justify the attention of contractors, the board or acting commissioner on the line may cause the job to be accomplished by laborers to be employed and paid by the board or the acting commissioner.

SEC. 14. That so soon as any work, or portion or division thereof, shall be ready to be placed under contract, the acting commissioner, to whose special charge and supervision the same shall have been assigned by the board, agreeably to the provisions of the eighth section of this act, shall give notice of the time and place of letting, by advertisements to be published in at least five newspapers printed in this State, and in such other newspapers as the board may deem the interests of the State to demand, at least once in each week for five weeks next preceding the day of said lettings, which advertisements shall contain a brief description of the nature and amount of work which will be offered to contractors, and shall state the time within which contractors will be required to commence and complete the work; with such other information as the board may deem advisable. The bids or proposals shall be sealed, and shall state a specific and definite price for the work to be performed, and shall be received by the acting commissioner on the work, on, or at any time previous to, the day of letting. The acting commissioner on the line, and at least one other member of the board, together with the principal engineer in charge

of the work, shall attend at the time and the place of the letting; and the said commissioners shall, at the hour of four o'clock in the afternoon of the said day, close the further receipt of proposals, and immediately proceed to open, examine, and compare the several bids which shall have been made for each respective job of work proposed to be let; and shall let the same to the lowest responsible bidder or bidders therefor: *Provided*, That the said commissioners shall have authority to refuse any and all bids, which, in the opinion of said commissioners and principal engineer, may be deemed exorbitant; and shall and may proceed to re-advertise and let the work so overbid, at such time and place as the board may think most advisable for the interests of the State. All bids and proposals for work, received by any commissioner, shall be retained, and handed over to the secretary of the board, who shall file and preserve the same. Proposals for contracts to furnish and deliver materials for the construction of works, may be received in such manner, and upon such notice, as in the opinion of the board may be most expedient to promote the interests of the State; but all proposals for such service shall be received in writing, and filed and preserved in like manner as proposals for the execution of work: *Provided*, That negotiations and contracts for railroad iron, to be obtained from foreign countries, may be carried on and made in such manner as the board may deem best calculated to advance the interests of the State.

SEC. 15. All contracts shall be entered into, under such conditions and reservations, to be expressed at large in said contracts, as shall enable and fully authorize the board of commissioners of public works to declare the same to have been abandoned by the contractor or contractors, in all cases where the work shall not be fully commenced at the time and according to the terms of said contract; and also in cases whenever, in the opinion of the acting commissioner and engineer in charge of the work, the contractor or contractors shall neglect or refuse to prosecute his contract with an assiduity and efficiency that shall give a reasonable assurance to the said commissioner and engineer of its uniform progress, and final completion, within the time specified in the said contract; or when, in the opinion of the principal engineer, said contractor shall perform the work imperfectly, and shall refuse or neglect forthwith to remedy such imperfect performance; and the job so declared to be abandoned may forthwith be relet by the board, without the let, hindrance, or disturbance of the former contractor or contractors, or of any person or persons claiming to act for or under him or them. The contracts shall also contain a provision prohibiting the subcontracting of jobs, or any portion thereof, without the consent of the board, under the penalty of a forfeiture of contract, and of all retained per centage remaining unpaid thereon.

SEC. 16. The contracts shall be signed and sealed by the acting commissioner on the work, for the time being, on the part and behalf of the board, and shall be binding on the State; and shall also be signed and sealed by the contractor or contractors; and triplicate copies thereof shall be thus executed. One of said copies shall be retained by the contractors; one shall be filed in the office of the auditor of public accounts; and the other filed in the office of the board of commissioners of public works, and recorded by the secretary of the board, in a book to be furnished for that purpose; and the said secretary shall furnish the acting commissioner with copies of said contracts, whenever thereunto required.

SEC. 17. During the progress of the public works, fair and correct esti-



mates of the probable amount of work actually done by the contractors, on each respective job, shall be made by the engineer in charge of the work, or by an assistant assigned to that service, at stated periods, not exceeding two months asunder; and there shall be paid to the contractor a sum not less than sixty-seven per centum, nor more than eighty-five per centum on the amount of the work actually performed, at the discretion of the acting commissioner on the work; and the balance shall be retained as a security to the State for the faithful performance of the contract, until the full completion thereof, according to its terms; at which time the work shall be accepted, if done according to contract, and the balance in full shall be paid to said contractors; and the acting commissioner, in making his decision as to the equitable proportion of the estimates to be retained as security for the State, shall be governed by the diligence and efficiency of the contractors in the prosecution of their contracts; by the aggregate amount of per centum already retained, and by the probable risk of injury to the unfinished works, to be apprehended from freshets or other casualties, which risk shall rest with the contractors; and in the event of any contract being declared to be abandoned, for any of the causes mentioned in the fifteenth section of this act, all retained per centage on the amount of estimates shall be forfeited to the use of the State. Copies of all estimates made during the progress of the work as above directed, shall be transmitted to the secretary of the board of commissioners of public works, to be by him filed and preserved for future use and reference.

SEC. 18. The said board of commissioners of public works is hereby authorized and required to adopt such measures as may be necessary to commence, construct, and complete, within a reasonable length of time, the following works, viz:

*First.* The improvement of the navigation of the Great Wabash river, in that part of the same over which the States of Indiana and Illinois have concurrent jurisdiction, for which improvement the sum of one hundred thousand dollars is hereby appropriated; which said appropriation the said board of public works are hereby authorized and required to expend in said improvements, in conjunction with the State of Indiana, in equal amounts, and for like objects. And the said board of commissioners of public works are hereby authorized and empowered to co-operate with the board of internal improvement of Indiana, or with such other authority or authorities of said State as are or may be put in charge of the expenditure of appropriations made by the State of Indiana for the improvement of said river, in the survey and examinations of the obstructions to the navigation, and in the location, construction, completion, and management of all works, at the joint and equal expense of both States, which, by the joint boards or other authorities aforesaid, may be deemed of the greatest utility, to render said river navigable at all stages of water, for steam and other boats in that part of the said river above specified; and also, in the disposition, use, and management of the water powers created or rendered available by the construction of said works of improvements. And the said board of commissioners of public works are hereby authorized and empowered to enter into an agreement and compact on the part of the State of Illinois, with the board of internal improvement of the State of Indiana, or such other authority as said State has or may authorize and empower to enter into such agreement and compact on the part of said State of Indiana, for the joint and mutual co-operation of the two States, in the said survey, location,



construction, completion, and management of the improvements and works hereby contemplated ; and for the joint and mutual use and management of, and jurisdiction over, all hydraulic power created or made available thereby ; which said agreement and compact, when ratified by the Governor of the State of Indiana, or by such other authority as the said State of Indiana may authorize to ratify the same, and make it binding on the said State, shall be valid and binding on the State of Illinois : *Provided, however,* That if there should be any incoherence between the laws of Indiana and of this State, as to the specific mode of advertising and letting contracts, and of paying the estimates made during the progress of the work, it shall and may be lawful for the board of commissioners of public works to conform to the mode prescribed by the laws of Indiana, in so far as the improvement of the Wabash river alone may be concerned, until the discrepancies aforesaid may be remedied by legislative enactments, or by the contemplated compact aforesaid ; anything in the fourteenth and seventeenth sections of this act to the contrary notwithstanding. And it is hereby made the duty of the Governor of this State, to transmit to the Governor of the State of Indiana, as soon as practicable, after the passage of this act, a certified copy of the preceding part of this section thereof.

*Second.* The improvement of the navigation of Illinois river, west of the third principal meridian, for which the sum of one hundred thousand dollars is hereby appropriated ; and it is hereby made the duty of the board of commissioners of public works to apply and expend the said appropriation in removing or overcoming the most formidable obstructions and barriers to the steamboat navigation in the said river, and to adopt and prosecute such plans for said improvements, as in their best judgments will be most beneficial and efficient to render the said river navigable for steam and other boats, at all stages of water therein.

*Third.* The improvement of the navigation of Rock river, for which the sum of one hundred thousand dollars is hereby appropriated ; and the board of commissioners of public works shall apply and expend the said appropriation in removing or overcoming the most formidable obstructions to the steamboat navigation in the said river ; and shall commence their operations and expenditures, by removing or overcoming the obstructions of the above descriptions, which are nearest to the mouth of the said river ; and shall progress thence up stream with said improvements, so far as the said appropriation will extend ; and the said board may adopt and execute such plans for said improvements, as in their judgment will be best calculated to render the said river navigable for steam, keel, and other boats, of the description and dimensions suited to said river in its course within the jurisdiction of this State ; having due regard to the permanency of the structures they may erect, and to the greatest and most useful amount of water powers to be created or made available thereby for the use of the State.

*Fourth.* The improvement of the navigation of the Kaskaskia river, for which the sum of fifty thousand dollars is hereby appropriated ; and the said board of commissioners of public works are hereby authorized and required to apply and expend the said appropriation on the said river, on improvements adapted to steamboat, keel-boat, and flat-boat navigation, and to commence the line of said improvements, at the obstruction to said navigation nearest the mouth of the river, and to progress upwards, giving the low water channel in the said river, at the shoalest places therein, a con-

venient and uniform depth for the uninterrupted passage of keel and flat-boats, and of steamboats of such dimensions, as in the judgment of the board will be best adapted to the navigation of the said river; and shall also remove such timber obstructions to the navigation as may be deemed injurious or dangerous to the said navigation; and the said board, in adopting and executing their plans for the said improvements, shall have a due regard to the greatest and most useful amount of water power, to be created or rendered thereby for the use of the State, as a proper and economical location and construction of the works will admit of: *Provided*, Said board of commissioners of public works shall equalize the expenditure of said fifty thousand dollars, as near as may be, on all portions of said river, susceptible of improvement from its junction with the Mississippi, upwards, in removing the obstructions from its channel, in making short cuts across the bends, and in clearing off the trees from the margin of the same.

*Fifth.* The improvement of the navigation of the Little Wabash river, for which the sum of fifty thousand dollars is hereby appropriated; and the said board of commissioners of public works are hereby authorized and empowered to expend and apply the said appropriation in the improvement of the navigation of the said river, in such manner as they shall deem most advisable for the public good, to render the navigation thereof safe and practicable for steam, keel, and flat-boats, and the said board shall have due regard to the greatest and most useful amount of water power to be created by the works they may erect for the improvement of the said river for the use of the State. And the said board of commissioners of public works, in the construction of dams across any of the rivers aforesaid, are hereby authorized to construct and keep in repair suitable chutes in the said dams, for the accommodation of the ordinary flat-boats, and others descending navigation in the rivers, whensoever, in their opinion, the costs and practicability of construction, and the interests of the State, will justify the construction and maintenance thereof.

*Sixth.* Two hundred and fifty thousand dollars of the first loans to be effected under the provisions of this act, are hereby appropriated; and shall be expended, under the directions of the board of commissioners of public works, on the great western mail route, leading from Vincennes to St. Louis, as follows, viz: Thirty thousand dollars on that part thereof lying between Vincennes and Lawrenceville, embracing what is commonly called the "Purgatory swamp." Fifteen thousand dollars on the Little Wabash river bottom, between the Big Muddy branch thereof and the main river, at McCawley's bridge, in Clay county. Thirty thousand dollars on that part of said road lying between the Bluffs and the Mississippi river, in the county of St. Clair; and the residue of said appropriation shall be expended in bridging and repairing said mail route, as equally as practicable, on other parts thereof; and the said board of public works are authorized to erect and have kept, toll gates on any portion of said route, on which the said appropriation may in part be expended, as they may deem proper, and establish such reasonable rates of toll thereon, as in their opinion will protect the rights of the State, and not be burdensome to the people.

*Seventh.* A railroad from the city of Cairo, at or near the confluence of the Ohio and Mississippi rivers, to some point at or near the southern termination of the Illinois and Michigan canal, via Vandalia, Shelbyville, Decatur, and Bloomington, and from thence via Savannah to Galena; for



the construction and completion of said railroad and appendages, the sum of three million and five hundred thousand dollars is hereby appropriated.

*Eighth.* A southern cross railroad from Alton to Mount Carmel via Edwardsville, Carlyle, Salem, Fairfield and Albion; and also a railroad from Alton to Shawneetown, to diverge from the aforesaid southern cross-railroad, at or near Edwardsville, and thence from said diverging point via Lebanon, in St. Clair county, Nashville, in Washington county, Pickneyville, in Perry county, Frankfort, in Franklin county, and Equality, in Gallatin county; for the construction and completion of which said railroads and appendages, the sum of one million and six hundred thousand dollars are hereby appropriated.

*Ninth.* The northern cross railroad, from Quincy, on the Mississippi river, via Columbus and Clayton, in Adams county, Mount Sterling, in Schuyler county, Meredosia and Jacksonville, in Morgan county, Springfield, in Sangamon county, Decatur, in Macon county, Sidney, in Champagne county, and Danville, in Vermillion county, and thence to the State line, in the direction of Lafayette, Indiana, which railroad shall cross the Sangamon river at some eligible point below the north and south forks thereof; for the construction and completion of which said railroad and appendages, the sum of one million eight hundred and fifty thousand dollars is hereby appropriated, exclusive of the necessary sum for constructing a bridge over the Illinois river, to be appropriated whenever the said bridge may be authorized by the Legislature.

*Tenth.* A branch of the central railroad, to commence at some eligible point on said road where a direct line from Hillsborough to Shelbyville would intersect the same, or within one mile of the said point of intersection, and to run from thence via Shelbyville, in Shelby county, Charleston, in Coles county, Paris, in Edgar county, and thence to the State line in a general direction for Terre Haute, Indiana; for the construction of which said branch railroad, and appendages, the sum of six hundred and fifty thousand dollars is hereby appropriated; and it shall be lawful for the "Alton, Wabash, and Erie Railroad Company," incorporated January 16, 1836, to connect the westerly end of their proposed railroad at its point of commencement on the Central railroad, with the said branch railroad, on such terms and conditions as is provided in this act, for making such connexions; and the said company are hereby exonerated from all liability to construct so much of their proposed railroad as lies east of the Central road: *Provided*, That said company or corporators release to the State, in the manner hereinafter provided, all claims under their charters, to construct said eastern end thereof; and, also,

*Eleventh.* A railroad from Peoria, in Peoria county, via Canton, in Fulton county, Macomb, in McDonough county, Carthage, in Hancock county, to Warsaw, on the Mississippi river; for the construction of which said railroad and its appendages, the sum of seven hundred thousand dollars is hereby appropriated.

*Twelfth.* A railroad from Lower Alton, via Upper Alton and Hillsborough, to the Central railroad, so as to intersect the railroad from Terre Haute to the same; and the sum of six hundred thousand dollars is hereby appropriated for the completion of the same.

*Thirteenth.* A railroad from Belleville via Lebanon, to intersect the railroad from Alton to Mount Carmel, at the nearest and most eligible point on



said road; and the sum of one hundred and fifty thousand dollars is hereby appropriated for the completion of the same.

*Fourteenth.* A railroad from Bloomington, in McLean county, to Mackinaw town, in Tazewell county, to diverge a fork at said Mackinaw town; one branch or fork of said railroad to run to the Illinois river, and connect with the Peoria and Warsaw railroad, at Peoria; and the other branch to run through Tremont to Pekin; for which the sum of three hundred and fifty thousand dollars is hereby appropriated.

*Fifteenth.* There shall be appropriated the sum of two hundred thousand dollars of the first moneys that shall be obtained under the provisions of this act, to be drawn by the several counties in a ratable proportion to the census last made, through which no railroad or canal is provided to be made at the expense or cost of the State of Illinois; which said money shall be expended in the improvement of roads, constructing bridges, and other public works.

SEC. 19. Nothing contained in the seventh, eighth, ninth, tenth, and eleventh articles of the foregoing sections shall be so construed as to authorize and render necessary the expenditure of the whole of any of the said appropriations, on the respective works, for the construction of which the several appropriations are made, unless the whole amount shall be requisite to construct the same, in the general manner and according to the general plan specified in this act; and any surplus of any or either of the said appropriations not needed in the completion of the said several works and appendages thereof, including the necessary machines, and motive powers to put the same into full and complete operation, and fitted to accommodate the trade, transportation, and travel thereupon; and the establishment of depots, store-houses, and other buildings, weighing machines, and other apparatus necessary thereto, shall be deemed an unexpended balance of said appropriation, and be subject to future appropriation by the Legislature.

SEC. 20. That, for the purpose of constructing the several works of internal improvement contemplated by this act, there shall be constituted a fund for internal improvements, which shall consist of all moneys which shall and may be raised by the sale of stocks or State bonds, or in any other manner by virtue of loans authorized by law; and of all appropriations which may be made from time to time out of the revenue of the State arising from land taxes; and of all moneys arising and to be derived from the tolls and water, and other rents of all the said works of internal improvements; and of all rents, issues, and profits, arising from the lands purchased or entered by the State for the purpose of promoting and aiding in the construction and completion of said works, either by leasing or selling the same; and of the proceeds of all lands which may be donated by the General Government in aid of internal improvements in this State; and of all grants or donations which may be received from individuals, companies, corporations, or the General Government, to aid in the completion of said works; and, also, all the profits and interests which may accrue from the said works, in any manner whatsoever, together with the balance (after paying the debt due from the State, to the school, college, and seminary funds) of the moneys to be received from the Treasury of the United States under the provisions and operation of an act of Congress, providing for a distribution of the surplus revenue of the United States by depositing the same with the several States; which

amount of said deposite so funded shall be charged to the said fund for internal improvement, and repaid out of the same, when the said deposite shall be demanded by the General Government; and together with all net profits to arise from bank and other stocks hereafter to be subscribed for and owned by this State, after liquidating the interest on loans contracted for the purchase of such bank or other stocks.

SEC. 21. The board of fund commissioners are hereby authorized and required, on the part and behalf of this State, to contract with any individual, company, or corporation, at such time as the said board may find it necessary to meet the re-payment of the aforesaid deposite of the General Government, or the payment of other legitimate demands upon the funds for internal improvements, and at such times as they may be advised by the board of commissioners of public works that the same will be needed in the purchase of lands, or prosecution of the works under their charge, supervision, or direction, for a loan or loans, from time to time, in all not exceeding the sum of eight millions of dollars, on the faith of this State; which said loan or loans shall bear an interest, not exceeding six per cent. per annum, payable semi-annually, at the treasury of this State, or at some bank or banks in the cities of Boston, New-York, or Philadelphia, as may be agreed upon, and the principal of which to be reimburseable at the pleasure of the State, at any time after the first day of January, Anno Domini one thousand eight hundred and seventy, and to be so negotiated that the proceeds may be drawn for, and bear interest at any time as early as practicable, when the board of fund commissioners may be advised by the board of commissioners of public works that said money will be required for the progress of any of the works of internal improvements, for the construction of which said funds are appropriated by this act, and the said board of fund commissioners shall issue for said loans, transferable certificates, to be denominated "certificates of Illinois internal improvement stock," in the name of the State of Illinois, which, when signed by the members of the said board, or by a majority of them, and countersigned by the auditor of public accounts of this State, shall be valid and binding on this State; and to facilitate the purposes herein contemplated, the said board of fund commissioners shall have power to make such arrangements relative to obtaining the loans, the payment of interest thereon, and the transmission and deposite of the money arising therefrom, as they may deem conducive to the best interests of the State, as shall not be inconsistent with the provisions of this act, or of any subsequent act of the Legislature in relation thereto.

SEC. 22. For the punctual payment of the interest, and final redemption of the principal, of all sums of money which may be borrowed under the provisions of this act, there shall be and hereby are irrevocably pledged and appropriated, all the interest and claim of the State of Illinois in all the works of internal improvements, to the construction of which, either in whole or in part, the moneys loaned under the provisions of this act shall have been appropriated and expended, together with all lands, waters, and water powers thereunto appertaining, and the privileges thereby created, and the rents, issues, and profits thereof, together with the net proceeds of all tolls collected thereon, for the sufficiency of which to pay the interest and principal of the said loans, as the same shall become due and payable, the State of Illinois doth hereby irrevocably guarantee, and for which pay-



ments and redemption, well and truly to be made and effected, the faith of the State of Illinois is hereby irrevocably pledged.

SEC. 23. All moneys which may be received by the board of fund commissioners, or either member thereof, from the proceeds of loans, or otherwise, under the provisions of this or any subsequent act of the Legislature, as soon as conveniently may be after the receipt of the same, be deposited by them in some safe bank or banks, to be selected by the board of fund commissioners, and to be placed to the credit of the board of fund commissioners of the State of Illinois, and shall make such contracts with the said bank or banks, for the reception and payment of the said deposits, on such terms and conditions as will best tend to make the said sums as productive as practicable to the fund to which it may belong; and, at the same time, insure the prompt payment of all drafts which may become necessary to be drawn by the board to meet the expenditures on the public works in progress, or for the purpose of purchasing lands, and for the payment of interest on loans; and upon the further condition, to be expressed in the contract with the said bank or banks, that the cashier or president thereof shall deliver, or transmit by mail or otherwise, to the auditor of public accounts of this State, monthly statements of the accounts of the said board of fund commissioners of Illinois, as the same shall stand upon the books of the bank, on the last day of every month; and it is hereby made the duty of the said auditor of public accounts to receive and file said statements in his office, and to give notice to any of said deposite banks of the failure to receive from the said banks any of the said monthly statements, whenever delayed beyond a reasonable period; and in order to enable the said auditor to discharge said duties, the board of fund commissioners shall notify the auditor of public accounts whenever the said board shall open an account with any bank, under the provisions of this section, and, also, of the time of closing any such accounts.

SEC. 24. The board of commissioners of public works shall furnish the acting commissioners on the respective lines of the public works with the necessary funds to prosecute the works under their charge and supervision, respectively; and for that purpose shall give drafts from time to time, on the board of fund commissioners, signed by the president, or president pro tempore, for the time being, and countersigned by the secretary of the board, payable to the order of the said acting commissioner, and specifying on the face of said draft the particular work to which the amount thereof is to be applied; which said drafts, when endorsed by the said acting commissioner, in his official capacity, shall be paid by the board of fund commissioners, subject, however, to the provisions and restrictions contained in the fifth section of this act; and also under such other rules, regulations, and restrictions, as the said board of fund commissioners may deem necessary for its security and proper application: *Provided*, That whenever it may be necessary to pay any contractor or other person, company, or corporation, a large sum of money for work performed, materials furnished, lands purchased, or for other legitimate purposes, for carrying into effect the objects of this act, said payments may be made directly to such persons, companies, or corporations, by a draft drawn on the board of fund commissioners, payable to the person, company, or corporation, entitled to receive the same, which draft shall be signed by the president, or president pro tempore, of the board of commissioners of public works, and by at least one, and by as many other commissioners as there are amounts



of twenty thousand dollars included in the amount of said draft, and shall be countersigned by the secretary of the board ; which draft shall specify the objects for which it is drawn, and to the particular work, to the account of which it is to be charged ; and shall be paid by the said board of fund commissioners, on presenting to said board, under such regulations as they may establish for the payment of such special drafts ; and the amounts of the last description of drafts shall not be deemed by the board of fund commissioners to be remaining in the hands of the commissioner of public works, signing the same, in contemplation of the said fifth section of this act.

SEC. 25. The board of commissioners of public works shall cause all moneys coming to their hands, or to the hands of the respective acting commissioners, to be expended, in the most economical manner, on the works of internal improvements authorized by law, and placed under their charge and supervision, and on none others, nor for any other objects excepting such as are specified in this act ; at such times and places, and in such sums as they may deem most judicious and conducive to the general public good ; having in view a prudential distribution of the available labor of the State, over and upon all the various works authorized to be constructed, as shall tend in as small a degree as possible to increase the prices of labor and provisions, beyond a reasonable amount, in any one section of the State ; and having also in view a fair and equitable uniform progress of all of the said works, at the same period of time. And it shall be the duty of the said board of commissioners of public works to commence the different portions of the railroads at their intersection and connexion with navigable streams, and to progress from said streams, in both directions, in order that the roads may become productive of revenue, as early as possible : *Provided*, That nothing herein contained shall be so construed as to prevent the said commissioners from prosecuting and putting into operation any portions of the said railroads, in the interior, and remote from navigable water courses, whenever they may deem the interest of the State to demand it, and particularly in both directions from important trading towns on their routes.

SEC. 26. The said board of commissioners of public works are hereby authorized and empowered, so soon as any portions of the said public works shall be so far completed as to be capable of use, to provide the requisite machines and motive power to put the same into operation, under such rules and regulations as the said board may think expedient to adopt ; and to establish such tolls, and to adopt such measures to secure the faithful collection and payment thereof to the board of fund commissioners, as they may deem most advisable, to promote the objects intended by this act.

SEC. 27. It is hereby made the express duty of the board of commissioners of public works, by one or more of its members, to proceed, in early and due time, along the lines of the several railroads and other works herein authorized to be constructed, and take from the several individuals, companies, and corporations, through whose lands the said contemplated works may probably pass, or which may be contiguous to the routes thereof, grants and releases to the State of the necessary land, timber, stone, and other materials necessary for the purpose of constructing any or all of said works, or for maintaining and repairing the same, and also for building ground for the construction of mills or other hydraulic machinery, to be propelled by the water powers created by said works ; and, also, for the purpose of erecting ware-houses, engine houses, work-shops, and other necessary build-

ings ; and also such plats of ground as shall be deemed necessary for depots and stopping stages, at the ends and along the routes of the said railways ; and also all such sites for dams and locks, and other works to be by them erected, under the provisions of this act ; and also to enter and purchase in the name and on behalf of the State of Illinois, any lands belonging to the General Government, or to individuals, companies, or corporations, which will or probably may be necessary for any of the purposes above mentioned. Releases and conveyances shall be taken in the name of the State of Illinois, and shall operate to vest in the said State a full and complete right to enter upon, use, and take the said lands, materials, and privileges thereby granted, at any and all times thereafter.

SEC. 28. It shall be lawful for the board of commissioners of public works, and each of the members thereof, by themselves or by any superintendent, agent, or engineer, employed by them, to enter upon and take possession of and use all and singular any lands, streams, and materials of any and every description, for the location, prosecution, and completion of the improvements contemplated by this act ; and all plats of land as shall be necessary for the convenient and profitable use of water powers created thereby, and for the location of depots and stopping stages, at the ends and along the route of any line of railroad ; and for the purpose of constructing any bridge, dam, lock, canal, side cut, or other river improvement, and upon which to erect such and so many lock houses, warehouses, engine houses, work shops, and other buildings, as shall be necessary to carry into full effect the objects contemplated by this act, whenever, and in all cases, any of the aforesaid lands or privileges cannot be obtained by the voluntary grant or release of the owner or owners thereof, avoiding in all cases unnecessary damage and injury to private property.

SEC. 29. That when any person or persons, company or corporation, whose lands, waters, or materials, shall have been taken and used in the manner and for any of the purposes mentioned in the foregoing section, shall feel aggrieved by the taking and using the same for the use of the State, by the said board of commissioners of public works, the owner or owners of said property shall have redress and remuneration for the injury or supposed injury, in the manner prescribed, and under the provisions of an act entitled "An act concerning the right of way, and for other purposes," approved February 28th, 1833 : *Provided*, That the justice of the peace summoning the householders to act as appraisers in the case, shall choose the said householders with a view to their capacity and integrity, and who shall not be directly or indirectly interested in the result of the decision to be made by them, and who shall, in addition to the oath required to be administered to them by the said recited act, swear or affirm that they are not interested, either directly or indirectly, in the lands or other property in controversy, nor in any other lands, waters, or materials, likely to be required by the State, in the construction of any of the public works authorized to be constructed, and that they have not any present intention of becoming so interested ; and the damages to be fixed and awarded by the said householders shall be paid by the board of commissioners of public works, to the owner or owners of the property so taken, or to their legal representatives ; which decision and payment of damages, shall operate to vest in the State of Illinois all such lands, waters, privileges, and materials, as fully and to all intents and purposes, as if the same had been granted or released to the State by the owner or owners of said property : *Provided*, That either



party may take an appeal from the said decision before the justice of the peace, to the circuit court of the judicial circuit in which the lands or other property may be situated, within such time, and in such manner and form, as near as may be, as shall be allowed by law in other cases before justices of the peace; and the said justice shall recognise any member or the board of public works, or any agent, superintendent, or engineer, employed by the said board, and who may appear in the case on the part of the State, as the party authorized to act in the case for the State, and no appeal bond shall be required to be filed, by the person so authorized to appear and act for the State, on any such appeal to be applied for by them, any law or practice to the contrary, notwithstanding. And in no case shall the pendency of any petition, suit, or appeal, between the State and the said owner of property, operate to delay or hinder the progress and completion of any of the works authorized by this act.

SEC. 30. That whenever any lands, waters, privileges or materials necessary to be taken and used for the construction of any of the aforesaid works shall belong to minors, feme coverts, persons who are non compos mentis, or non-residents of the State, it shall and may be lawful for the board of commissioners of public works, or any member thereof, to file a petition in the office of the clerk of the circuit court of the county in which said lands or other property may lie, stating all the facts in the case, as are within the knowledge of the petitioner, and describing the land, waters, privileges, and materials, which it has become necessary to take and use for the State, in the construction of any work, and the said circuit court, setting and acting as a court of chancery, shall make such orders in the case, and make and enforce the execution of such decrees in the premises, as shall appear to said court, upon a full hearing of the facts of the case, to be just and equitable, being governed in its decisions by the principles for valuation laid down in the act concerning right of way, cited in the foregoing section of this act.

SEC. 31. The said board of commissioners of public works are hereby authorized and required to enter and purchase, for and on behalf of the State of Illinois, any lands belonging to the General Government, and lying within five miles of the probable route of any of the public works, which, in the opinion of any two members of the board, may be deemed valuable, and the value of which will in their opinion be materially enhanced by the construction and completion of the said works contiguous thereto: *Provided*, That any tract of unentered land not exceeding one hundred and sixty acres, upon which an actual settler may reside, shall not be entered by the said board, unless the occupant shall consent to such entry.

SEC. 32. All deeds, grants, releases, certificates of the entries of Government lands, and other vouchers relating to lands, released, purchased, or taken for the State, shall be filed in the office of the auditor of public accounts, and shall be by him recorded in a book to be provided for that special purpose, and an alphabetical list of the said vouchers shall be kept in the said book, for the convenience of reference.

SEC. 33. The location of all the railroads authorized by this act shall be made with a view of occupying the most direct and eligible route between the several points named for their commencement and termination, and between such intermediate points as are specified, adopting in all cases such plan and profile for the respective roads as will be productive of the greatest useful effect in their operation, as the nature of the country over which they pass, and an economical construction, will admit of: *Provided*, That.

in cases where any county or other important trading town cannot be reached with the main line of railroad, by a judicious and economical location, it shall and may be lawful for the board of commissioners of public works to construct a lateral branch of the said main line to the said town, calculated for a single track only, when the distance to said town from the main line shall not exceed five miles, if in the opinion of the board the interests of the State will not be compromised or injured thereby.

SEC. 34. The location of the several roads which intersect the navigable rivers shall be made with a view of crossing the valleys thereof, without the aid of stationary power wherever practicable, and also with the further view of combining the aforesaid character of the line with that of commanding a favorable and eligible site for the construction of bridges over the said rivers: *Provided*, That the construction of bridges over the Illinois and Great Wabash rivers shall be dispensed with by the board until specially authorized by the Legislature; and if it should be found impracticable to locate any railroad over the valleys of the Illinois and Wabash rivers, without resorting to inclined planes to be overcome by stationary power, the said inclined planes shall also be dispensed with by the board, and the depot made at the summit, until the action of the Legislature can be had upon the subject: *Provided, also*, That if said railroads intersecting any navigable stream shall be ready for use before any bridge over the same shall be completed, it shall be lawful for the board to procure and keep in operation the necessary ferry boats and apparatus to transport the trade and travel across said river, until the said ferry shall be superseded by the completion of the bridge over the same; and for the purpose of establishing and keeping in operation the said ferries, the board are hereby authorized and required to procure the necessary plats of land on either side of any river, by release, purchase, or otherwise, as is hereinbefore provided for procuring lands for other purposes, to carry into effect the objects of this act.

SEC. 35. The road bed formation and bridges shall, in all cases, be made of sufficient width to admit of the construction of a single track railway thereupon, and all the bridges over streams exceeding eighty feet wide from bank to bank, shall have sufficient extra width to admit of the safe passage of the common road wagons, and the embankments and excavations at the end of said bridges shall be accommodated to the passage thereof, unless, in the opinion of the board of commissioners of public works, this plan may be dispensed with in special cases without prejudice to the public good; whenever it may be inconvenient and expensive to procure suitable building stone for the construction of bridge abutments, culverts, or other structures, durable and well selected timber may be substituted therefor, with the ultimate view of replacing the same with stone, to be transported on the railways when completed, at any time when the necessity of the case may require it.

SEC. 36. One track only of the said railways, with the necessary turn-outs and side tracks at the convenient point for stopping stages and depots along the lines, not less than five miles nor more than fifteen miles asunder, and also at the intersection of navigable rivers, and at the commencing and terminating points of the several lines of railroads, shall be laid down, until, in the opinion of the Legislature, the exigencies of the trade on any route and the public good may demand the construction of the additional track.



SEC. 37. The tracks of all the railways to be constructed in this State, shall be made of one uniform width : which width shall be four feet and eight inches in the clear : *Provided*, That if any agreement or understanding shall hereafter be entered into between this and any other or all of the western States and Territories, to provide for a uniform width of railway tracks therein, the board of commissioners of public works shall conform thereto : *Provided*, The same shall not be less than four feet and six inches.

SEC. 38. The superstructures of all the railways to be laid down on all the roads authorized by this act, shall be laid upon a wooden or stone foundation, or both, as may be most convenient and economical ; and shall be made of hard and durable timber, or with stone and timber combined, where stone of a suitable quality can be found convenient to the line, as in the judgment of the board of public work, is most economical and expedient, and the rails shall be plated with iron, not less than five-eighths of an inch in thickness, (excepting lateral branches) before cars shall be permitted to run upon the railways ; and the whole of the main lines shall be of sufficient strength and solidity to admit of the successful application of steam power upon the said railways.

SEC. 39. The board of commissioners of public works shall adopt such plans and elevations for all bridges over navigable streams, as shall not obstruct the ordinary navigation thereof ; and shall construct and provide safe, convenient, and suitable crossings over all railroads, for all public roads and highways laid out prior to the location of the said railroads, which shall intersect the said railroads : *Provided*, That they shall have power to change the specific location of any such road or highway, in that part thereof contiguous to the route of said railroad, in order to command the most eligible and economical site for making said crossing : *And provided, also*, That such change of location shall not materially increase the length of said travelled road or highway, or prejudice the usefulness thereof ; and shall also construct and provide crossings for private roads and farmways, at such suitable and convenient points as will be least expensive to the State, and least injurious to the railway, and at the same time accommodate, as generally as practicable, the neighborhood or individuals intended to be accommodated thereby. In order to provide against the expense and injury arising from an unnecessary number of road crossings over railroads, all public and private roads to be laid out, after the location of any railroad route, and which shall intersect the same, shall, whenever the public interests will not be essentially prejudiced thereby, be located and directed to some former established crossing, or to some regular stopping stage and depot on the line of the railroad.

SEC. 40. That if any person shall wilfully, wittingly, and maliciously, or negligently, obstruct any railroad in this State, by throwing or placing upon the track of any said railroad, any material or thing calculated to injure any engine, car, or vehicle, running thereon, or to throw the same from the track of said railroad, or shall otherwise obstruct or injure any railroad, or any engine, viaduct, car, bridge, or other appendage thereof, in any manner whatsoever, or shall ride, drive, or lead, any beast, wagon, or other vehicle across any railroad, excepting upon the road crossings provided for that purpose, every person so offending shall be deemed to be guilty of a misdemeanor, and upon conviction thereof shall be fined in any sum not exceeding one thousand dollars, or imprisoned any term not exceeding

five years, or both, at the discretion of the court before whom the conviction may be had.

SEC. 41. Every locomotive engine, passing upon any railroad, shall have attached to the same a bell of not less than twenty-five pounds weight, and the said bell shall always be rung at the distance of at least sixty rods from the place where said railroad crosses any other railroad, turnpike road, highway, or public road, upon the same level with the said railroad, and shall be kept ringing until the engine and its train shall have crossed the said road or way.

SEC. 42. There shall be boards conspicuously put up, and constantly maintained, across each turnpike road and highway, crossing any railroads upon the same level therewith, in such a position as can be easily seen by travellers, and without obstructing the travel; and on each side of the said board shall be printed in plain and legible capital letters, of at least the size of nine inches each; **RAILROAD CROSSING; LOOK OUT FOR THE ENGINE WHILE THE BELL RINGS.**

SEC. 43. The board of commissioners of public works are hereby authorized and empowered to adopt and enforce, from time to time, all such rules and regulations as they may deem necessary and expedient, for the purpose of carrying into full effect the objects of this act, and to provide for the security and successful management and operation of the public works authorized hereby; and in the absence of legislative enactments, to fix and establish the rates of toll to be collected thereupon, and provide for the faithful collection thereof, and for the payment of the amounts collected to the board of fund commissioners; which rules and regulations, and rates of tolls, shall be published, and printed copies thereof kept up, publicly exhibited along the several lines of the public works, wherever their observance is required; and any person knowingly, wilfully, and maliciously offending against the said rules and regulations, or refusing or evading to pay the established tolls, shall be deemed guilty of a misdemeanor, and on conviction thereof shall be fined or imprisoned by the court before whom the conviction may be had: *Provided*, That the fine shall not exceed fifty dollars, and the imprisonment six months, unless the offence shall be deemed by the court to come within the purview of the fortieth section of this act, when the penalties therein prescribed may be inflicted by the court: *And provided also*, That no conviction under this act shall be deemed to exempt the offender from the payment of all damages which may have accrued to the public and private property, in consequence of the commission of any such offences.

SEC. 44. For the purpose of guarding against accidents, and for the greater security of lives and property on railroads in this State, no person shall be employed in the situation and capacity of engineer or conductor of locomotive engines, or of superintendent of the transportation thereon, who is habitually intemperate.

SEC. 45. It shall be lawful for any individual, company, or corporation, to connect any branch or other railroad with the roads hereby authorized to be constructed, at such points, and upon such reasonable conditions, to protect the rights of the State, as the board of commissioners of public works may deem to be just and right: *Provided*, That the tracks of all such branch or other railways shall be of the precise width of the railways of the State; and the construction of the wheels of the cars in use on said branch or other railways, and designed to pass off upon the State railroads and run thereon,



shall be of such a model as shall not materially injure the State railroads : *And provided, also,* That the engines, cars, and coaches, passing from the said lateral to the State railroads, shall be subject to and conducted while on the said State railroads, by the rules and regulations adopted by the board for that purpose.

SEC. 46. Whenever in the opinion of the board of commissioners of public works there shall or may be surplus water, over and above the quantity required for navigation at any dam, lock, or other work constructed at the expense of this State, either in whole or in part, the said board are hereby authorized and empowered to lease the water power produced by said surplus water, together with the necessary plats of grounds upon which to erect hydraulic machinery, to be propelled thereby, to the highest bidder therefor, under such conditions and restrictions as a majority of a full board of commissioners may deem necessary and proper for the interests of the State ; but no water power shall be leased by the board unless the ground upon which the same is proposed to be used shall be the property of the State, unless otherwise specially provided for by the Legislature.

SEC. 47. For the purpose of securing the confidence of the people in the honesty and integrity of the officers and engineers concerned in the public works, and to protect said officers and engineers from imputations of malfeasance in the discharge of their respective duties, it shall not be lawful for either member of the board of public works, or for any engineer concerned in the recognizance, examination, or location of any of the public works authorized by this act, or hereafter to be authorized by law, after the date of their election or appointment, to purchase, or in anywise become interested, either directly or indirectly, in any lands, tenements, or real estate, lying within five miles of the routes or probable routes of any of the railroads authorized by this act, or within one mile of the proposed location of any dams, or locks, by which water power will be created, until the permanent location of any such works shall have been definitely fixed and established by the board of public works, and the said established location shall have been marked out on the ground and made fully public ; nor shall any contingent contract, bargain, or understanding be made in the premises, for any such lands or real estate by which the provisions and prohibitions contained in this section may be evaded, or intended to be evaded, by any such commissioner or engineer. And it shall be the express duty of the said commissioners and engineers, (to the observance and discharge of which each engineer shall be sworn or affirmed before entering into the discharge of any of the duties of his appointment,) to keep secret, for the interests and advantage of the State, all information which he or they may become possessed of in the discharge of their respective duties, relating to all lands which may be necessary and useful for the State to become possessed of, either by entry or purchase, for the use of the works, or otherwise to aid in their construction, and to enter and purchase the same for the State, under the authority of this act, or any subsequent act or resolution of the General Assembly authorizing the same ; or to give the necessary notice to the board of public works, or to some member thereof, that the said lands may be so entered or purchased ; and shall not, either directly or indirectly, give any such information to any other person or persons whatsoever : And if any member of the board of commissioners of public works, or engineer, shall be guilty of a violation of any of the provisions of this section of this act, he shall be deemed guilty of a misdemeanor, and upon conviction thereof

before any court of competent jurisdiction, shall be fined in any sum not exceeding five thousand dollars; one-half to be paid to the person who may inform thereof and prosecute to conviction, and the other half to be paid to the fund for internal improvements; and said conviction shall amount to a removal from his office or appointment as the case may be, and the offender shall forever thereafter be incapable of holding any office or appointment in this State: *Provided*, That nothing herein contained shall be so construed as to prevent any commissioner or engineer from purchasing or leasing for a term of years a residence along any of the lines of the public works on which they are engaged, if the same be done in good faith, for the purpose of a residence alone, and not with any intention of evading the provisions of this section; nor shall it be so construed as to prevent purchasers of town property in any town, to which the respective rail routes are permanently fixed by law, and the location of which said road at said point is in nowise left to the discretion of the board of commissioners of public works: *And provided*, That such purchases of town property shall not be situated on the immediate line of the said railroad.

SEC. 48. The said board of commissioners of public works, or any member thereof, are hereby authorized and required to prosecute and defend all suits for damages done to the public works, or trespass on the lands of the State, entered or purchased, or otherwise acquired for the use of said works, or in aid of their construction for the use of the State, in any court of record having cognizance thereof; and to proceed in all matters and things as an individual might do; and such damages, when collected, shall be paid over to the board of fund commissioners; and all acts in force in this State, in relation to trespass upon lands, by cutting timber or otherwise, shall be deemed to extend to trespasses committed upon State property.

SEC. 49. Nothing in this act contained shall be construed to extend to the Illinois and Michigan canal, or to any operation thereon, or to the funds relating thereto, or to the canal lands granted by Congress to aid in the construction thereof.

SEC. 50. The board of commissioners of public works shall suspend their operations on the several railroads named in this act, for which companies have heretofore been incorporated to construct, until said companies or corporations shall have relinquished and released to the State their right to construct the said railroads or parts of roads aforesaid, respectively, by releases signed and sealed by a majority of the board of directors, (if the companies have been organized and directors elected,) which releases shall and may contain a proviso and reservation for the benefit of the said companies, that the State shall and will commence, construct, and complete the said railroads named and designated in this act, and for which the said releases are given, respectively, within the time, and as is provided for in the first clause of the 18th section of this act: *Provided*, That said releases shall be given by the said companies or corporations, and filed in the office of the Secretary of State within a reasonable time, and without unnecessary delay: *And provided, also*, That nothing contained in this section shall be so construed as to prevent, excuse, or delay the board of commissioners of public works, or other authorized agent or agents on the part of the State, from entering or purchasing lands along or contiguous to any of the routes or probable routes of any of the said railroads for the use of the State, by virtue of this act, or any other act or resolution of the General Assembly prior to the making and filing of any such releases; but shall



be construed to extend only to commencing the survey and construction of the said several railroads for which releases have not been executed and filed as aforesaid.

SEC. 51. That whenever the proprietor of any town plat, or the corporation of any town or borough, through which any of the railroads, authorized by this act, are to pass, shall object to the passage thereof, or the said proprietors, corporations, or owners of property, shall require and exact from the State unreasonable damages for the right of way through the said town plat, it shall be lawful for the board of commissioners of public works to locate the said road, in the vicinity thereof, in such manner as will best promote the interest of the State.

SEC. 52. That so soon as there shall be appointed a board of commissioners of public works under the provisions of this act, said board of commissioners shall proceed to survey and locate all railroads contemplated in said act so soon as they can possibly perform the same; and so soon as said road or roads are located, it shall be their duty to advertise the same in some one or more newspapers printed in this State, as said commissioners shall think best, for contracting with any person or persons, company or companies, for the contracting and completing of a part or of all of said railroad, to be done on the plan laid down by said board of commissioners.

SEC. 53. That it shall also be the duty of the board of commissioners to contract for the immediate construction, so soon as located, of all the railroads or parts thereof contemplated between Quincy and the Wabash, as lies between Jacksonville, in Morgan county, Springfield, in Sangamon county, Decatur, in Macon county, and Danville, in Vermillion county; thence to the State line in Vermillion county in a direction to Lafayette, in Indiana, at such point as the commissioners of this State and of Indiana may agree to cross the same.

SEC. 54. That any company or companies, contracting for the construction of all or a part of said railroad, and furnishing money for the completion of the same; (provided the amount so appropriated does not exceed the amount agreed upon by said contracting parties for the completion of said railroads,) and whenever said railroad or roads shall be completed by said company or companies, then it shall be the duty of said commissioners, and they are hereby required, to report the same to the fund commissioners, whose duty it shall be to draw a warrant or warrants in favor of the company or companies for the same, together with six per cent interest from the time they commenced said work, provided they on their part suffered no unnecessary delay.

SEC. 55. Whenever said railroad is completed according to the provisions of this act, and the same paid for, then it shall be a public road, and be managed and kept in repair as all other public State railroads are kept: *Provided*, That the money to be paid as aforesaid shall be paid out of the fund appropriated for the construction of said road, and no other: *And provided, further*, That all parts of said road may be put under contract, and completed upon the terms provided in the foregoing sections.

SEC. 56. This act shall be deemed and taken to be a public act, and shall be taken notice of as such, without the necessity of pleading the same; and shall be in force from and after its passage.

Approved February 27, 1837.

An ACT supplemental to the "act to establish and maintain a general system of internal improvements."

SEC. 1. *Be it enacted by the people of the State of Illinois, represented in the General Assembly,* That the board of fund commissioners, created by the act to which this is a supplement, shall take and use all proper means and measures for the transferring the stock authorized to be constituted by said act, and also for the transferring all State bonds authorized to be made and executed under the provisions of this act, and it shall be deemed a good execution of the power to borrow, to cause the said certificates of stock and State bonds to be sold : *Provided,* That said stock and bonds shall not, in any event, be sold for less than par value.

SEC. 2. The Governor of the State is authorized and required, whenever requested by the said fund commissioners, to execute bonds for and in behalf of the State, for any sum or sums of money which may be borrowed, under the provisions of this and the act to which this is a supplement, in any foreign language, stipulating for the payment of the interest and principal, in such foreign currency and country as shall be found most beneficial for the interest of the State ; which bonds shall be signed by the Governor, countersigned by the auditor of public accounts, with the impress of the great seal of State affixed thereto, and shall be delivered to the fund commissioners.

SEC. 3. The fund commissioners are authorized to appoint one or more agents, with full power to negotiate the loans, and make sale of the State bonds and certificates of stock in any foreign country, and to vest the said agent or agents with as full and ample powers as are by law vested in the said fund commissioners.

SEC. 4. The State hereby engages and agrees to provide sufficient revenues and means to pay the interest and principal of all sums of money, which, under the provisions of the act to which this is a supplement, may be borrowed, as the same becomes due and payable ; and the faith of the State is hereby irrevocably pledged to comply with the provisions of this section.

Approved March 4, 1837.

An ACT further supplemental to an "act to establish and maintain a general system of internal improvements."

SEC. 1. *Be it enacted by the people of the State of Illinois, represented in the General Assembly,* That so much of the act, to which this is an amendment, as authorizes three of the board of commissioners of public works to form a quorum of said board to do business, be, and the same is hereby, repealed, and hereafter no less than four shall be requisite to constitute a quorum.

SEC. 2. The fund commissioners elected under the provisions of the act to which this is a supplement, shall hold their offices for two years, and until their successors are elected and qualified.

SEC. 3. Nothing in the act to which this is a supplement shall be so construed as to entitle the fund commissioner or commissioners of public works to receive their per diem compensation, excepting for the time actually and bona fide engaged in the discharge of their respective duties.



*An abstract from the Journal of the Board of Commissioners of Public Works of the State of Illinois, for April, 1837.*

At the first meeting of the board of commissioners of public works of the State of Illinois, begun and held at Vandalia on the first Monday in the month of April, A. D. 1837, the following members appeared and took their seats as such, to wit: Of the 1st judicial circuit, Murray McConnel; 2d. William Kinney; 3d. Elijah Willard; 4th. Milton K. Alexander; 7th. Ebenezer Peck.

Messrs. Joel Wright and James W. Stephenson, of the 5th and 6th circuits, not appearing to take their seats.

On motion of Mr. McConnel,

William Kinney was unanimously appointed president of the board; whereupon he immediately took his seat as president.

By request Mr. McConnel consented to act as secretary until a secretary should be appointed and qualified.

On motion of Mr. Willard,

G. W. Carruthers, Esq., was appointed secretary of the board of public works.

*Ordered*, That said secretary give bond and security in the sum of five thousand dollars; that he reside and keep his office at Vandalia, and keep the same open from eight o'clock in the morning until five o'clock in the evening.

Adjourned until to-morrow morning, 10 o'clock.

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TUESDAY, April 4, 1837.

The board met pursuant to adjournment; present, the members as of yesterday.

This day came G. W. Carruthers, and presented his bond as secretary of the board; said bond was approved, and the approval and the oath of office of the said secretary were ordered to be endorsed thereon.

*Ordered*, That said bond be filed in the office of Secretary of State of the State of Illinois.

On motion of Mr. McConnel,

*Resolved*, That the secretary procure 500 printed blanks for drafts, according to 24th section of the act "To establish and maintain a general system of internal improvements," and also 300 blanks for deeds of release for lands, &c. to the State, under the 30th section of said act.

*Ordered*, That the board adjourn until to-morrow morning, 9 o'clock.

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WEDNESDAY, April 5, 1837.

The board met pursuant to adjournment.

Present: Hon. Wm. Kinney, president of the board, and Messrs. Willard, Peck, Alexander, McConnel, and Mr. Joel Wright of the 5th circuit; Mr. Stephenson absent.

On motion of Mr. Peck,

*Resolved*, That the commissioner of the fourth judicial circuit be especially empowered and requested to do and perform all things necessary for the improvement of the Great Wabash river, in the manner, and under the restrictions, contained in the first clause of the 18th section of the act "To establish and maintain a general system of internal improvements," and also under the joint resolutions of the General Assemblies of the States of Indiana and Illinois, forming a compact between said States, in relation to the said improvements.

Mr. McConnel, from a committee heretofore appointed for the purpose, reported the following rules and ordinances, organizing the board of public works and the central office, and prescribing the duty of the secretary of the board.

SEC. 1. *Be it ordained by the Board of Commissioners of Public Works of the State of Illinois*, That there shall be established at the seat of Government a general office, to be styled the central internal improvement office of the State of Illinois.

2. The secretary of the board shall receive a salary of one thousand dollars per annum, to be paid quarterly out of the internal improvement fund.

3. Said secretary shall attend all meetings of the board, and shall keep a journal of all the proceedings thereof while in session, and shall record the same in a book called the journal, in the order in which the same occurred, including the resolutions offered, and propositions made by each member of the board, together with the vote of each member upon each question, which shall always be by *viva voce*, when requested by any one member of the board; which journal shall, at all times, be open for inspection, as provided by law.

4. It shall be the duty of said secretary to receive and file, and, if necessary, record all returns from the clerks of the district offices, or from any of the acting commissioners of the board, together with all plans, profiles, reports, estimates, specifications, and other documents, transmitted or delivered to said office, by any engineer of any district in the employ of the commissioners, all of which shall be open for the inspection of all persons interested, in the presence of said secretary.

5. Said secretary shall do and perform all other acts required of him by law, or by the orders of the board of public works, made while in session, or that may be directed by the president of the board during vacation. All proceedings of the board shall be signed by the president.

6. That each commissioner of the board of public works shall be acting commissioner, and shall have the control, direction, and management of all the different parts of the public works as lie within the respective circuits in which they were elected, and shall have upon all and each of said public works all the powers given by law to the board of public works over all the internal improvements of the State.

7. They, and each of them, shall be furnished by this board with the amount of money necessary to carry on the surveying, location, estimates, and construction, of all and each of said works, and also for the building of offices, shops, warehouses, and other necessary buildings, and for salaries of officers, engineers, agents, and all other persons employed upon said works, in each of the said districts, and for all necessary expenses touching said works.

8. Copies of all drafts payable to the acting commissioner shall be filed



and recorded in the district office in the district in which said commissioner shall reside ; and when said draft or drafts shall be paid, the receipt of said money shall be entered in the proper books of said office, and copies of said drafts, and of the accounts of cash received by each commissioner, shall be transmitted to the Secretary of the board at the central office, and there filed and entered on record in a book to be kept for that purpose.

9. For the better enabling the President of the board to furnish the acting commissioners with the necessary funds, in pursuance of the foregoing provisions, it shall be the duty of the president to cause to be printed a sufficient number of drafts upon the board of fund commissioners, in which drafts the following blanks shall be left to be filled up by the acting commissioner, when it may become necessary to use said drafts, to wit : The date and place where drawn ; the commissioner to whom payable ; the amount to be drawn for ; the particular work to which said amount thus drawn for is to be applied ; and the number of the draft. And it shall be the duty of the president to number and sign, in his official capacity, and to deliver to each of said acting commissioners, a sufficient number of said drafts to enable said commissioner to obtain from the board of fund commissioners whatever sums of money may be necessary to carry on the improvements under his particular charge ; which drafts shall be charged by their numbers to the acting commissioner to whom delivered.

10. Whenever it may become necessary for any acting commissioner to draw for, pay out, or use, any sum of money not properly chargeable to any particular work, (such as the salaries of officers, engineers, agents, and other persons employed upon and for all the internal improvements of the State, and not for any particular one,) said commissioner shall fill up said drafts *to be charged to the particular object to which said money is to be applied*, and the said drafts when paid, and the money applied to the object for which the same was drawn, shall be charged by the secretary of the district office to the general expenditure.

11. Monthly returns shall be made to the secretary of the board at the central office by the acting commissioners and the *clerks* of the district offices, and also to the fund commissioners, of all money expended upon each work, and for all other purposes whatever ; and the secretary of the board shall cause to be kept in well bound books, a fair and complete record, according to the ninth section of the " Act establishing a general system of internal improvement," and the accounts of money expended shall be made up from the returns aforesaid, and such other vouchers as may be furnished by the board from time to time, all of which shall be subject to inspection according to law.

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*Rules and ordinances dividing the State into engineering districts, and organizing the district offices.*

Sec. 1. *Be it ordained by the board of commissioners of public works,* That the State of Illinois shall be divided into four districts for engineering purposes, to be called internal improvement districts.

2. *Resolved further,* That all that part of the State of Illinois lying north of a line commencing at the mouth of the Illinois river, on the west side, thence up along the margin of the river at low water mark, to a point opposite the

mouth of the Sangamon river, thence across the Illinois river and up on the margin of said river as aforesaid, to the north side of Tazewell county, thence east on a line dividing the county of Tazewell from the county of Putnam, and then due east to the east side of the State of Illinois, shall compose the northern district.

3. That all that part of the State of Illinois situated within the following boundaries, to wit: beginning at a point where the Central railroad crosses the north line of McClean county, thence east to the State line, thence south on said line to the Wabash river, thence down said river to the south side of the county of Crawford, thence westwardly to the town of Vandalia, thence north on the line of the Central railroad, including the same, to the north fork of Sangamon river, thence north on the line of said road, excluding the same, to the place of beginning, shall compose the eastern district.

4. That all that part of the State of Illinois situated within the following boundaries, to wit: beginning at the mouth of the Illinois river, from thence down the Mississippi to the centre of the town of Lower Alton, thence east to Vandalia, thence north on the line of the Central railroad, excluding the same, to the north fork of the Sangamon river, thence north on the line of said railroad, including the same, to the north line of McLean county, thence west to the east bank of the Illinois river, thence down the east shore of said river at low water mark to the mouth of the Sangamon river, thence across said river and down on the west side of the same to the place of beginning, shall compose the western district.

5. That all that part of the State of Illinois situated south of the eastern and western districts, shall compose the southern district.

6. There shall be one principal engineer appointed in each of said districts, by the board of public works, or by the acting commissioner or commissioners of said districts, whose duty it shall be to make or superintend the making of all surveys and estimates of all and each of the public works in his district, under the direction of the acting commissioners of the board, to whose charge the work is committed, by order of the board of public works. Said chief engineer shall receive a competent salary, not exceeding three thousand dollars per annum.

7. The acting commissioner of each judicial circuit shall be authorized to employ as many assistant engineers and surveyors and other assistants, from time to time, as to said commissioners may seem necessary to facilitate and forward the different works under his charge.

8. The survey and estimates of said assistant engineers shall pass under the supervision of the principal engineer of the district, before the same is let to contractors: said assistant engineers shall receive a compensation not exceeding two thousand dollars per annum.

9. There shall be established in each of the said districts an office to be styled the District Office for Engineering Purposes.

10. The principal and all assistant engineers shall at all times obey the instructions and rules adopted by the board of public works, and shall be under the control of the acting commissioner of the circuit in which he or they may be engaged for the time being.

11. Copies of all plats, releases, conveyances, drafts, reports, estimates, and surveys, shall be kept at said offices.

12. All bids shall be received and examined, and all contracts let at said office, or at such other places as the acting commissioner may deem expedient. Copies of all bids and copies of the contracts furnished to the acting



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the State, according to the 53d, 54th, and 55th sections of the act to establish a general system of internal improvements, at any time hereafter, so soon as the same, or any part thereof, can be located: *Provided*, The whole average cost of said road, and all necessary expenses connected therewith,

mouth of the Sangamon river, thence across the Illinois river and up on the margin of said river as aforesaid, to the north side of Tazewell county, thence east on a line dividing the county of Tazewell from the county of Putnam, and then due east to the east side of the State of Illinois, shall compose the northern district.

3. That all that part of the State of Illinois situated within the following boundaries, to wit: beginning at a point where the Central railroad crosses the north line of McClean county, thence east to the State line, thence south on said line to the Wabash river, thence down said river to the south side of the county of Crawford, thence westwardly to the town of Vandalia, thence north on the line of the Central railroad, including the same, to the north fork of Sangamon river, thence north on the line of said road, excluding the same, to the place of beginning, shall compose the eastern district.

4. That all that part of the State of Illinois situated within the following boundaries, to wit: beginning at the mouth of the Illinois river, from thence down the Mississippi to the centre of the town of Lower Alton, thence east to Vandalia, thence north on the line of the Central railroad, excluding the same, to the north fork of the Sangamon river, thence north on the line of said railroad, including the same, to the north line of McLean county, thence west to the east bank of the Illinois river, thence down the east shore of said river at low water mark to the mouth of the Sangamon river, thence across said river and down on the west side of the same to the place of beginning, shall compose the western district.

5. That all that part of the State of Illinois situated south of the eastern and western districts, shall compose the southern district.

6. There shall be one principal engineer appointed in each of said districts, by the board of public works, or by the acting commissioner or commissioners of said districts, whose duty it shall be to make or superintend the making of all surveys and estimates of all and each of the public works in his district, under the direction of the acting commissioners of the board, to whose charge the work is committed, by order of the board of public works. Said chief engineer shall receive a competent salary, not exceeding three thousand dollars per annum.

7. The acting commissioner of each judicial circuit shall be authorized to employ as many assistant engineers and surveyors and other assistants, from time to time, as to said commissioners may seem necessary to facilitate and forward the different works under his charge.

8. The survey and estimates of said assistant engineers shall pass under the supervision of the principal engineer of the district, before the same is let to contractors: said assistant engineers shall receive a compensation not exceeding two thousand dollars per annum.

9. There shall be established in each of the said districts an office to be styled the District Office for Engineering Purposes.

10. The principal and all assistant engineers shall at all times obey the instructions and rules adopted by the board of public works, and shall be under the control of the acting commissioner of the circuit in which he or they may be engaged for the time being.

11. Copies of all plats, releases, conveyances, drafts, reports, estimates, and surveys, shall be kept at said offices.

12. All bids shall be received and examined, and all contracts let at said office, or at such other places as the acting commissioner may deem expedient. Copies of all bids and copies of the contracts furnished to the acting





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commissioners of the respective circuits upon the works within the districts, shall be filed and recorded in said office by the secretary of the board, according to the sixteenth section of the "act to establish and maintain a general system of internal improvements." All moneys to be paid to officers, agents, engineers, contractors, and other persons, shall be made payable at said office, at such other place or places as may seem expedient. Copies of all estimates made during the progress of the different works, shall be filed and recorded in said office, together with all other documents and proceedings that may be directed to be filed, kept, or recorded in said offices, necessary to a fair, full, and perfect understanding of the progress of the different works within the respective districts, and the rights of all parties connected therewith.

13. There shall be appointed to take charge of each of said offices a principal clerk, to be styled the Clerk of the District Offices, whose duty it shall be to furnish well bound books in which to make all records necessary and proper to be made at said office. He shall open an account with each work situated within, or passing through, the districts, in which he shall charge all moneys paid out, upon, or for the construction of said improvements, and shall credit each of said works with all tolls or other moneys received from, or arising out of, the use of the same; said clerk shall also keep a general account of all moneys paid out by the acting commissioner or commissioners within the district, not properly chargeable to any one work or improvement, and to keep all other accounts, and to make all records necessary to be made, and that may be directed by the board, or by the acting commissioner or commissioners having charge of the works passing through said district; and it shall be the duty of said commissioners, and each of them, to cause to be kept in said office an account of all money by them, or either of them, received from the fund commissioners for the use of the system of internal improvements, and to furnish to said clerk of the proper district all information necessary to enable him to perform the several duties enjoined upon him by this ordinance or by the board of public works.

All records, files, and other documents, shall be open for the inspection of all persons concerned therein, during office hours, and in the presence of said clerk, and under such rules and regulations as may be adopted by the acting commissioner or commissioners of the circuits or parts of circuits composing said district.

14. Said clerks shall be appointed by the acting commissioner or commissioners resident in the district, and shall hold their offices during the pleasure of the commissioner or commissioners aforesaid, and until their successors shall be duly appointed, and shall receive a salary not exceeding one thousand dollars per annum.

15. Said offices shall be located at such places as the acting commissioner or commissioners in the district may see proper, under the advice of the board.

16. The acting commissioners of the 1st, 4th, and 5th judicial circuits, and each of them, are hereby authorized to receive proposals, and put under contract all or any part of the cross railroad from Quincy to the east line of the State, according to the 53d, 54th, and 55th sections of the act to establish a general system of internal improvements, at any time hereafter, so soon as the same, or any part thereof, can be located: *Provided*, The whole average cost of said road, and all necessary expenses connected therewith,

shall not exceed the sum appropriated by law for said work; which contracts, when made, shall be executed according to the 16th section of said act, for, and on the part and behalf of, this board of public works; and the same, when so made, shall be binding upon the State of Illinois, and upon the person or persons, company or companies, taking said contract: *And provided, further,* That the six per cent. interest mentioned in the 54th section of said act shall not be paid, except from the time the said money shall be expended upon said work.

On motion of Mr. Alexander,

*Ordered by the board of public works,* That the acting commissioner of the 4th judicial circuit be authorized to call on the principal engineer of the southern district at the proper time, to have surveys and estimates made on the great western mail route leading from Vincennes, Indiana, to St. Louis, Missouri, so far as the same lies in said district, preparatory to letting contracts on the same.

On motion of Mr. McConnel,

*Ordered,* That the acting commissioner of the 1st judicial district have the control and management of all the improvements of the navigation of the Illinois river, below the mouth of Sangamon, and that the improvements of the navigation of said river, above the mouth of Sangamon river, shall be under the control and management of the acting commissioners of the 5th, 6th, and 7th judicial circuits.

*Resolved,* That two and one-half per cent. upon the sums appropriated for the construction of the several railroads, provided for by the act "To establish and maintain a general system of internal improvements," approved 23d of February, 1837, will probably be required to meet the expenditures in the prosecution thereof, before the first day of September next, and that the fund commissioners be notified thereof.

2. That the sum of one hundred and twenty-five thousand dollars will probably be required to be expended before the first day of September next, on the great western mail route leading from Vincennes to St. Louis, under the provisions of the aforesaid act, and that the fund commissioners be notified thereof.

3. That five per cent. upon the sums appropriated for the improvement of the several rivers, under the aforesaid act, will probably be required to be expended upon the surveys of said rivers, before the first day of September next; and, also, that fifty thousand dollars, appropriated for the improvement of the Great Wabash river, will probably be required, before the said first day of September next, to be expended upon the said river, and that the fund commissioners be notified thereof.

Adjourned until to-morrow morning, 9 o'clock.

THURSDAY, April 6, 1837.

The board met pursuant to adjournment.

Present: full board.

On motion of Mr. Alexander,

*Resolved,* That thirty thousand dollars will probably be wanted to defray expenses incurred, not chargeable to any particular public work, (viz: clerk hire, office rent, wagons and teams, camp furniture, &c.,) up to the first



day of September next, and that the fund commissioners be notified thereof.

Mr. Peck, who was appointed, in connexion with Mr. McConnel, to draught instructions to the engineers, reported the following :

That the following plan and instructions shall be adopted and pursued by the principal engineers appointed by, and under the authority of, the board of public works for this State. The secretary of the board, or some other authorized person, shall notify the engineer of his appointment, and of the district or works assigned to him, and request that a letter of acceptance be communicated, which shall be filed by the secretary of the board, and preserved.

The secretary, or some other authorized person, shall, as early as practicable, make known to the said principal engineer the names of his senior and junior assistants, and of the surveyor to accompany him, who shall be required to report themselves to the principal, and to place themselves under his instructions, and to be subject to his directions.

The said principal engineer, unless otherwise directed, or unless the same shall be furnished by some person acting in that behalf, shall be authorized to procure camp equipage, teams, provisions, utensils, implements, and stationery, and to employ rod-men, chain-men, axe-men, and the other necessary laborers to complete an engineering party or parties.

In all expenditures it shall be forcibly and strictly enjoined upon the said principal engineer, to consult the most rigid economy ; and that he be also enjoined to take duplicate receipts for all disbursements, as no amount will be placed to his credit unless he shall produce a satisfactory voucher therefor.

The said engineer shall be directed to transmit to the secretary of the board an inventory of the articles, camp equipage, teams, and utensils in his possession, with an account of the cost thereof ; also, a roll containing the names and amount of compensation of each individual of the party, so soon as the same shall be organized ; and when the work shall be completed, the said articles, camp equipage, &c., to be returned to the care and custody of some commissioner or authorized agent. It is expected that due care will be taken to preserve the property of the State from injury and destruction.

All engagements of hands should be made upon the express condition that they shall strictly obey orders, and at all times conduct themselves civilly, morally, and industriously, while employed by the State ; also, that they shall abstain from the use of ardent spirits while acting with the party ; and that a breach of any of the foregoing conditions should be followed by immediate dismissal.

The principal, or one of the assistant engineers of each party, shall keep a journal of the general operations of each party, separate and apart from the field books, to be filed in the office of the secretary.

In order to carry into effect the intention of the Legislature in relation to the survey, location, and construction of the several public works, to observe, in addition to the requirement of the laws, the following general instructions :

To make such minute explorations of the country, as to be able to report under oath, that the "*most direct and eligible routes*" have been ascertained and selected between the several points named in the act.

In cases where the designated points on the routes cannot be commanded

without conflicting with the provisions and conditions contained in the 33d and 51st section of the act, to make all necessary examinations and estimates on routes and places at such points, and to report all the facts collected in reference to the difficulty to the board, for further instructions.

To confer freely with the members of the board of commissioners, and receive their directions.

The surveys to be made with a view to a minimum radius of 500 feet for curvatures, and a maximum grade of 30 feet to the mile, approximating, however, in all cases, as nearly to a straight line, both vertically and horizontally, as practical, without incurring unnecessary increase of expenditure.

In the construction of her public works, it has been the policy of the State not to embark in any of a temporary character, or of doubtful expediency, therefore your estimates will contemplate materials of a durable and permanent kind.

The estimates to be based on a road-bed for a single track only, excepting in approaching and receding from streams, over 80 feet wide, in which cases an extra width must be given to accommodate the common road wagons, and ultimately to be used for a double track rail-way, and excepting, also, at depots and stopping stages, where road-bed must be accommodated to a double track. In estimating the width of streams, under the provision of the 35th section of this act, measure from the top of the natural banks, in the direction of the line road, without reference to the requisite water way to be given for the stream.

The width of the graduation for a single track to be 14 feet in embankment, and 15 feet in cuttings, with the slopes adapted to the nature of the materials composing them.

Section 12 of the act, and from section 33 to 39 inclusive, to be considered and taken as part of these instructions, and the estimates to be based upon the directions for surveys and construction therein contained.

The surveys of the rivers having to be prosecuted during certain stages of water, it will be necessary to take advantage of the proper stage in them to make the necessary surveys and examinations of these under the laws, and for that purpose other operations which do not depend upon these uncertain contingencies must be suspended.

The surveys and examinations of the rivers to be made conformably to the directions contained in the 12th, and so much of the 18th section of the act as relates to them respectively.

The directions and requisitions of the 47th section of the act, in relation to the purchase of lands on the routes of the public works, of course to be strictly complied with on the part of the engineers, directly employed by the board; and the principal engineer to be required to impose similar restrictions on all persons attached to the parties engaged in the exploration of routes under such orders as the board may make, from time to time, for that purpose when communicated to them.

The acting commissioner on the line must be frequently advised of the progress of the surveys, and notified of the lands necessary and proper to be obtained by the State, for the use of the works or otherwise; and also of whatever is necessary or advisable to be done, to insure an efficient and economical execution of the duties of the engineering department.

A monthly estimate of the funds necessary for the service of each succeeding month, and of the name of the work for which the same is required, should be made on the first of each month, to be forwarded to



the acting commissioner, with vouchers for the expenditure of each preceding month, with an abstract embracing the names, amount paid to each, the nature of the expenditure, and the aggregate sum, and an account current showing the state of the account, and on what lines the expenditures have been made. Both abstract and account current to be in duplicate.

The explorations on the whole route to be minute, and such as will enable the engineer to present a detailed report upon the best route, and the probable cost of constructing the work.

In no case to permit a camp to be removed, or any work upon the line to be done, on the Sabbath day.

In case of difficulty or doubt, the advice of any of the principal engineers of the State may be taken, and when asked for should be given.

No engineer should absent himself for any length of time from any line, without notifying the acting commissioner.

Where more than one principal engineer shall be engaged upon a continuous line of road, they should endeavor to adopt the same scale for the different maps, plans, and profiles prepared by them.

To report upon the comparative cost, usefulness, and expedition in completing the work, by substituting truss work for expensive embankments over morasses, abrupt ravines, river bottoms, and other difficult passes.

*Ordered*, That the board adjourn until to-morrow morning, 9 o'clock.

FRIDAY, *April 7*, 1837.

Board met pursuant to adjournment.

Present, the whole board.

On motion of Mr. Peck,

*Ordered*, That the board adjourn until the first Monday in June next.

WM. KINNEY, *President*.

G. W. CARRUTHERS, *Secretary*.

*An abstract of the proceedings of the board of commissioners of public works of the State of Illinois, December session, A. D. 1837.*

REPORT OF THE BOARD OF PUBLIC WORKS OF THE STATE OF ILLINOIS  
TO THE GOVERNOR.

SIR: It has again become the duty of the undersigned, to report to the Governor of the State an account of their proceedings for the preceding six months; a period within which so much has been accomplished towards the advancement of our system of internal improvements, as to encourage the undersigned to hope that the public has reason to be satisfied with their labors.

The splendid predictions which the history of other States had encouraged the friends of improvement to publish, promised to be realized at a less distant day, than could have been at first anticipated; and the increased certainty that our State will in a few years be threaded by railroads,

bringing a ready market to the very doors of our farmers, cannot fail to enliven and cheer the patriot and philanthropist.

Those who at first were disposed to doubt the propriety of the act giving birth to our system, and looked upon it as visionary and impracticable, and were incredulous as to the benefits to result from the introduction of railroads into our fertile and flourishing State, already begin to doubt the correctness of the conclusions to which they had too hastily trained their minds, and are yielding a more cheerful support to a measure which is unquestionably calculated greatly to promote the public welfare, to exercise an extensive and beneficial influence upon our community, and to open new channels to the currents of traffic. Few at the present period are so blinded to the lights of experience, or so deaf to the voice of wisdom, as to be ignorant of the advantages which are brought home to the "business and bosoms" of men by the improvement of railroads; none will deny that they enlarge the resources of society, by multiplying the facilities of intercourse, and by extending the circle within which the same communities may act; while at the same time it enables men to concentrate their efforts upon any given spot where inclination or interest may lead. Whilst they reduce distances, they extend the links of social intercourse. They furnish to localities all the advantages of their position, and secure to them, by a speedy conveyance, all the advantages resulting from an immediate juxtaposition with those points favored by nature,—with channels of intercommunication. They knit together the interests of society, and develop new and manifold opportunities for the exercise of a vigorous and healthy enterprise, by furnishing sure rewards for the toils of the husbandman.

It having already been demonstrated by the actual success of railroads in other States, how advantageous they are on the score of direct pecuniary profit, independent of their vital efficacy in accomplishing salutary changes upon the sentiments and morals of society, it would seem that henceforward none but those who close their minds against all conviction, and wholly refuse to be persuaded, will any longer withhold their support and countenance from a system which is warmly cherished by a large majority of their fellow-citizens, and which promises so largely for the prosperity and happiness of all.

That there should be great eagerness on the part of the people to avail themselves of the benefits promised by the introduction of these improvements, is not surprising; that our system in its inception should have been extensive, is easily to be accounted for; it was the ready result springing from a great desire for the reception of a benefit; but that the system will prove too large for the interests of the State, leaves room for serious doubt. The choice of these channels of communication having been already settled by a judicious compromise, it would not only be difficult, but obviously wrong, except upon very cogent grounds, to attempt any great changes.

To wait until a sufficient accumulation of business at any interior point of the State, should render the necessities for a railroad imperious, would certainly be to delay until the exigencies of the case would admit of no further cavil. But in a case where the elements of growth and prosperity were abundant, and only required opportunity for expansion, it would also be acting against wisdom and in defiance of experience, to withhold the means of advancement. When we consider that the currents of traffic and of personal intercourse, instead of being confined to channels where



only water could be made to flow, may be led over mountains and through every region which human industry has enlivened ; and that the "prosperity of cities, instead of depending on the accident of being placed on a navigable stream, which can float its commerce to a vast interior, would hereafter depend upon the foresight and energy of their inhabitants in forming for themselves the channels of intercourse," by the aid of railroads, it is not surprising that the friends of internal improvements should have manifested a great degree of earnestness to furnish for all parts of the State the means of advancement, even though the present amount of business, by a frigid and narrow calculation, might not seem to warrant the expenditure. The projectors of this grand scheme were well capable of comprehending the noble results which would flow to their constituents, and, impelled by a wise patriotism, have planned a way—a sure and safe one—by which our State will be advanced to that exalted rank in the Union, which a kind Providence, by bountifully supplying us with all the elements of prosperity, destined us to fill.

In exhibiting a statement of the expenditures of the board, it becomes necessary for them to explain, that as they were bound to hold their meetings at the seat of Government on the first Monday of the present month, it was impossible to bring with them an account of their expenditures up to that date ; the accounts, however, are closed to as late a date as was practicable. The expenditures of engineering parties, remote from the residence of the respective commissioners, for which vouchers could not be furnished in proper time, and such other sums as were from omission and inadvertence not fortified by vouchers according to the requirements of the board, have been included under the head of estimated expenditures.

The following statement will show the amount expended for the preceding six months by the several members of the board, as shown by their respective accounts, audited and allowed by the board :

On the Central railroad	-	-	-	-	\$11,602 02
Peoria and Warsaw road	-	-	-	-	3,519 48
Northern Cross road	-	-	-	-	3,710 28
Paris, Shelbyville, and Alton road	-	-	-	-	2,755 75
Shawneetown and Alton road	-	-	-	-	1,725 59
Great Western mail route	-	-	-	-	1,152 81
Alton and Mount Carmel road	-	-	-	-	5,114 31
General fund	-	-	-	-	10,645 32
Improvement of Rock river	-	-	-	-	2,916 06
Estimated expenditure since the date of accouts filed					39,136 20½
Total of expenditures	-	-	-	-	\$82,277 82½
Amount received	-	-	-	-	<u>\$132,628 31</u>

The commissioner of the fourth judicial circuit has received from Samuel Mundy, in obedience to an act of the Legislature of the 4th March last, an unexpended balance of a former appropriation, for the improvement of the Wabash, amounting to \$2,826 12. Since the receipt of this sum, \$951 12 have been expended upon contracts previously entered into by Mr. Mundy. Arrangements have been made, in co-operation with the commissioners of the State of Indiana, for the improvement of the Great Wabash river, and

contracts for this object have been entered into, for the delivery of the necessary materials for the construction of the dam and locks at the Grand rapids.

By the vigilance of the acting commissioner of the second judicial circuit, the surveys on the Great Western mail route, between Vincennes and St. Louis, were completed at a very early day; and in conformity with the law in this behalf, requiring that the first moneys procured should be expended on this route, contracts to an amount bordering upon one hundred thousand dollars, have been let by the acting commissioner of the second and fourth judicial circuits. From the reports of the above named commissioners, these contracts have been vigorously prosecuted; and the beneficial results of the expenditures upon this road are fully appreciated by the community immediately interested in the improvement, and a pleasing earnest is manifested of the certainty of the completion of the road, and of the lasting benefits to be derived from the use of it.

The active commissioner of the first judicial circuit, availing himself of those provisions of the law contained in the 53d and 54th sections of the act, was enabled to place sixty-three miles of the Northern Cross road, extending from the Illinois river, via Jacksonville and Springfield, to the east bank of the Sagamon river, under contract, with the option of paying in State bonds, if other means should not be provided.

The fund commissioners having, since that letting, effected a sufficient loan to provide for the successful prosecution of all the works in due time, this road, of course, will receive, out of the funds raised, its fair proportion with other similar works.

All the contracts which have as yet been entered into on the part of the State, have been upon favorable terms, and those contracts let upon railroads have been let for a sum which will probably bring the cost of the roads within the appropriation made by the Legislature.

The money expended upon that portion of the Northern Cross road put under contract, as appears by the report of the commissioner, amounts to the sum of \$22,340 61½.

Proposals have been accepted for the putting under contract that part of the Pekin and Bloomington branch of the Central railroad, extending from the Illinois river to Tremont, the seat of justice of the county of Tazewell. The contracts have not been closed, inasmuch as the commissioner charged with this road was desirous of obtaining the sanction of the board for a higher vertical grade than that previously allowed, for the purpose of reducing the costs of construction.

A memorial has been forwarded to Congress by the board, asking an appropriation of land to aid in carrying out our system of internal improvements, which memorial, we doubt not, will receive a favorable consideration, since the sale of the public lands in the State must be greatly facilitated by the prosecution of our system.

In the prosecution of their duties, the several commissioners have caused nearly all the surveys of the different routes to be completed, or so far advanced as to have them fully completed, long previous to the next meeting of the Legislature, and before it will be advisable to put the roads under contract.

Every precaution and pains have been taken in the experimental surveys of the different roads, with a view to secure the most direct and eligible routes for the location of the roads; and they are pleased to report, that, for



the most part, highly advantageous sites for the different roads have been found.

In the prosecution of the surveys of the Great Central railroad, (and experimental lines have been run, nearly the whole length of it,) the engineers employed have found, after much pains and careful examination, a more favorable site for the road than was at first anticipated, and the undersigned feel great pleasure in reporting that this important line of communication is feasible, and comparatively easy of completion.

The surveys of the Little Wabash river have not been prosecuted from the difficulty in procuring sufficient competent force for the purpose.

The surveys of the Kaskaskia and Illinois rivers have been made by an officer, under the direction of the General Government; but the report of that officer in the premises, has not, up to the present period, been laid before the board. It is feared that the continued high stage of water in the Illinois, has rendered the survey of that river less useful than is desirable.

An examination of a minute character has been made of Rock river, and it is believed, from the reports of the engineer in charge of that work, that an improvement of this stream can be easily accomplished, and within the appropriation made for the purpose. It is the design of the acting commissioner of the sixth judicial circuit, to prosecute this improvement with all that spirit which its great importance demands.

The undersigned, in the prosecution of their labors, have been influenced by a sincere desire to enable all parts of the State to participate in the benefits resulting not only from an early use of the roads, but also from the expenditure of the necessary means used in their construction, and with this view, they have decided that no other contracts shall be let for the construction of the roads, for the ensuing six months, than the following:

	Miles.
1. On the Central road :	
From Cairo, (northerly,) twenty miles	20
From Illinois river, (northerly,) eleven miles	11
From Galena, (southerly,) twenty miles	20
From Illinois river, (southerly,) eleven miles	11
2. On Shawneetown and Alton road :	
From Shawneetown to Equality	12
3. On the Alton and Mount Carmel road :	
From Alton to the diverging point of the Mount Carmel and Shawneetown roads, at or near Edwardsville	15
From Mount Carmel to Albion	18
4. On the Alton, Shelbyville, and Paris road :	
From Alton, via Upper Alton, northerly, ten miles, so soon as the necessary surveys are executed, to determine the practicability of the road, within the limits for vertical inclination, adopted by the board	10
From the State line, via Paris, westerly, eighteen miles	18
5. On the Northern Cross road :	
From Quincy to Columbia, in Adams county	16
From Danville, (westerly,) eighteen miles	18
NOTE.--The portion of the road from the Illinois river to the Sangamon river having been previously let	64
6. On the Peoria and Warsaw road :	
From Peoria, (westerly,) twelve miles	12

From Warsaw, (easterly,) twelve miles	-	-	-	Miles, 12
7. On the Pekin and Bloomington road :				
From Pekin to Tremont, (previously let)	-	-	-	10
Total	-	-	-	<hr/> 266 <hr/>

The aggregate specified and estimated distances amounting to two hundred and sixty-six miles.

In this manner, it is designed to proceed with the roads in question, until their final completion.

That all the proceedings of this board should meet the entire approbation of the public, is not to be expected. Perfection is an attribute to which the board does not make any pretension. They have faithfully and zealously labored to advance the public interests, by all means within their control, and to carry out the designs of the framers of the law, in a spirit of truth and justice.

Their labors have proceeded with unanimity and concert, and they have been, thus far, enabled to carry on their designs with great unity of purpose.

In bringing this report to a close, the undersigned cannot omit to urge upon the friends of internal improvement the exercise of a proper patience, in awaiting the completion of the works contemplated by the bill. To press forward the whole work with too much zeal, would tend to increase the expense of construction to a very considerable amount, and, consequently, to create prejudice against the system, as wisely projected, and to cause embarrassment in carrying it into execution. The undersigned are devoted to the system of internal improvements, and are intensely impressed with its importance, and of the vast advantages which are to be gained by it to the whole State.

Forewarned of the difficulties they have to encounter, and of the jealous vigilance by which their acts will be scrutinized by a respectable portion of their fellow-citizens, they intend steadfastly to pursue the important objects intrusted to their charge ; fully persuaded that, out of their labors and the labor of their successors and coadjutors in the same field, is to spring the largest measure of good which legislative wisdom could bestow upon the community.

WILLIAM KINNEY,

*Pres't of Board and Com. 2d Judicial Circuit.*

M. McCONNEL,

*Commissioner of 1st Judicial Circuit.*

ELIJAH WILLARD,

*Commissioner of 3d Judicial Circuit.*

M. K. ALEXANDER,

*Commissioner of 4th Judicial Circuit.*

J. WRIGHT,

*Commissioner of 5th Judicial Circuit.*

J. W. STEPHENSON,

*Commissioner of 6th Judicial Circuit.*

E. PECK,

*Commissioner of 7th Judicial Circuit.*

JOSEPH DUNCAN,

*Governor of the State of Illinois.*



At a meeting of the board of commissioners of public works of the State of Illinois, begun and held at Vandalia, on Monday, the 4th day of December 1837. Present :

Of the 2d judicial circuit,

1st do. do.  
3d do. do.  
4th do. do.  
5th do. do.  
6th do. do.  
7th do. do.

William Kinney, *President*,  
Murray McConnel,  
Elijah Willard,  
M. K. Alexander,  
Joel Wright,  
James W. Stephenson,  
Ebenezer Peck.

*Be it ordained by the Board of Commissioners of public works of the State of Illinois*, That all applications to this board, coming from persons other than a commissioner, shall be made in writing, and shall contain a distinct proposition or propositions upon which the board may be required to act, and shall be presented to the board by the commissioner in whose circuit the object to be effected shall lie: *Provided*, That if said commissioner shall not be present at the meeting of the board, where said application is made, or shall refuse to make or offer said proposition or propositions, the same may be offered by any other commissioner present.

*Ordered*, That Ebenezer Peck, a member of this board, be appointed a general agent of this board and of the State of Illinois, to proceed, in the name of the board and of the State, to contract for all the railroad iron that may be needed for all the railroads in said State, that may be put under contract for the coming six months in the State of Illinois, and that he be authorized to negotiate for said iron by receiving proposals or otherwise.

3. *Ordered*, That the president of the board do furnish the commissioner of the 7th judicial circuit (Ebenezer Peck) with sufficient funds to defray his expenses in and about the negotiation under the authority of the board for railroad iron, spikes, knees, and plates, &c., and that the said sum be chargeable to the general fund.

4. *Ordered*, That the fund commissioners be requested to furnish the acting commissioner of the 7th judicial circuit with every proper facility to aid him in his transactions and negotiations for the purpose of purchasing railroad iron, spikes, knees, plates, &c., for the use of the State, and that this, together with the several resolutions in this behalf, be furnished the said fund commissioners.

5. *Ordered*, That the acting commissioner of the 1st judicial circuit (Murray McConnel) be required to cause the grade of the Pekin and Bloomington branch of the Central railroad to be increased, so that the said grade shall not exceed in any one place 75 feet to the mile, and that the contracts required to be entered into in January next, shall be so made as to allow of said change, and a deduction shall be made in the cost of said work in proportion to said change.

*It is further ordered*, That if any of said contractors shall refuse to enter into said contracts with a necessary provision in relation to said change, the said work shall be advertised and let to contract with the grade so altered.

6. *Ordered*, That the acting commissioner in charge of any specific railroad, together with the commissioner at the lettings, shall have the dis-

cretionary power to adopt a grade exceeding 40 feet elevation to the mile, and not exceeding 100 feet to the mile, in any case, which, in their opinions, a judicious economy in the construction of the work, will warrant such increase of inclination, without materially affecting the permanent utility of the work. And also, that such acting and associate commissioners may substitute temporary inclined planes, to be overcome by additional and extra motive power than that necessary for a grade of 40 feet to the mile, at any abrupt depressions, ravines, and declinations, in order to avoid, for the present, the expense of excessive heavy embankments, deep cuttings, or expensive viaducts; such temporary inclined planes to be located and constructed with a view to a future perfecting of the work, by dispensing with the said plans and adopting such embankments, cuttings, and viaducts, whenever the amount of trade on the line, and the interests of the community, may require the change to be made.

*Ordered*, That so much of the great western mail route as lies in the 3d judicial circuit, be transferred to and given in special charge to the acting commissioner of the 2d judicial circuit; and that so much of the Alton and Shelbyville railroad as may run through the county of Macoupin, shall be put under the care and direction of the commissioner of the 2d judicial circuit; and that improvements on the Little Wabash river be assigned in special charge to the commissioner of the 3d judicial circuit.

8. *Ordered*, That this board estimate the amount which will be required from the fund commissioners to meet the expenditures upon the public works for the ensuing six months, at the sum of three hundred and seventy-five thousand dollars, and that proper notice hereof be given to the said fund commissioners, and that the entry of this resolution upon the records of this board be deemed a compliance with the law in this behalf.

9. *Ordered*, That so much of the Peoria and Warsaw railroad route as shall be located in the county of Peoria, (the same being in the 6th judicial circuit,) shall be assigned to the supervision of the commissioner of the 5th judicial circuit, who is hereby required to control the operations on said work.

10. *Ordered*, That the several acting commissioners be authorized to adapt all or such portions of the railroads now authorized to be put under contract as they may think proper, to the use of animal power thereon, and to put cars thereon to be propelled by such power, so soon as any part shall be completed.

11. *Ordered*, That the president of the board be requested to open a correspondence with our Senators and Representatives in Congress, for the purpose of obtaining the passage of a law for the benefit of the State, to permit the importation or purchase of railroad iron, spikes, &c., free of duty.

12. *Ordered*, That a committee of three members be appointed to draught a memorial to the General Assembly of the State of Indiana, requesting that the said State should provide by law for the creation by the State of a railroad from a point on the Wabash river, opposite Mount Carmel, to New Albany, on the Ohio river, and also, a railroad from some eligible point upon the Wabash and Erie canal, to the State line of the State of Illinois, in the direction of Danville, in said last mentioned State.

13. *Ordered*, That a memorial to the Legislature of the State of Indiana be adopted, requesting of said State the construction of a railroad over that part of her territory lying between Terre Haute and the Illinois State



line, in the direction of Paris, so as to connect the terminating point of the Wabash and Erie canal, with the Paris and Alton railroad.

14. *Ordered*, That a committee of three be appointed to draw up a memorial to Congress, asking the donation to the State of Illinois, of all unappropriated lands lying within the Congressional sections through which any of our railroads may pass; and that Messrs. Alexander, Peck, and Stephenson, be said committee.

15. *Ordered*, That the extent of the railroads on the several routes, to be put under contract, for the ensuing six months, shall be as follows:

1. On the Central railroad.				
From Cairo (northerly) twenty miles	-	-	-	20
Illinois river (northerly) eleven miles	-	-	-	11
Illinois river (southerly) eleven miles	-	-	-	11
Galena (southerly) twenty miles	-	-	-	20
2. On the Alton and Shawneetown road.				
From Shawneetown to Equality	-	-	-	12
3. On the Alton and Mount Carmel road.				
From Alton to the diverging point of the Mount Carmel road at or near Edwardsville	-	-	-	15
From Mount Carmel to Albion	-	-	-	18
4. On the Alton, Shelbyville, and Paris road.				
From Alton, via Upper Alton, northerly, ten miles; so soon as the necessary surveys are executed, to determine the practicability of the road, within the limits for vertical inclination adopted by the board	-	-	-	18
From the State line, via Paris, westerly	-	-	-	10
5. On the Northern Cross road.				
From Quincy to Columbus, in Adams county	-	-	-	15
Danville, westerly, eighteen miles	-	-	-	18
NOTE.—The portion of the road from the Illinois to the Sangamon river, having been previously let	-	-	-	64
6. On the Peoria and Warsaw road.				
From Peoria, westerly, twelve miles	-	-	-	12
Warsaw, easterly, twelve miles	-	-	-	12
7. On the Pekin and Bloomington road.				
From Pekin to Tremont (previously let)	-	-	-	10
Aggregate number of miles	-	-	-	<u>266</u>

16. *Ordered*, That no portion of any railroad shall be placed under contract without the consent of the board: *Provided, however*, That any portion of any railroad authorized to be put under contract, may, at any time, be re let by the acting commissioner.

17. *Ordered*, That hereafter each of the acting commissioners of the board shall have power to establish an office or offices in each of their respective circuits, for internal improvement purposes, when they may think proper, and shall be authorized to employ a clerk or clerks in each of said offices.

*Ordered*, That after the first day of January next, the appointment of clerks of the present engineering district offices shall cease, and the said offices and appointments shall, from that date, be abolished. But the districts for engineering purposes shall remain as they now are.

*Ordered*, That all papers, books, accounts, and other things now filed, or hereafter to be filed, and required to be kept in the district offices, shall be returned to and kept in the said offices, to be established in the circuits, so far as the same may be applicable, or relate to the public works in said circuit.

*Ordered*, That all certificates and returns now required to be made by the said district clerks, or by the said clerks and the commissioner, may hereafter be made by the commissioner alone : *Provided*, That said commissioner shall not be required to make said returns oftener than quarter yearly.

*Ordered*, That all records, books, and accounts, applicable to any part of the public works, over which the commissioner of the respective circuit may have charge, or to any of the duties of said commissioner, shall be kept by said commissioner at said offices to be established in the circuit.

*Ordered*, That the several principal engineers, or other engineers of the district, shall cause to be filed in the offices of the circuits, copies of all maps, plats, profiles, and estimates, and all other things now required to be filed in the district offices, of all and each of the several parts of the public works passing through said circuit, or over which the commissioner of the circuit may have charge.

*Ordered*, That all lettings of contracts now required to take place at the offices may be advertised and take place at the offices to be established in the said circuits, or any other place or places the said commissioner or commissioners may deem proper.

*Ordered*, That all papers, vouchers, records, maps, plats, profiles, and other documents, applicable to all and every part of the public works, situated within the third judicial circuit, or applicable to the duty of the acting commissioner of said circuit, now on file at the district office at Belleville, Illinois, shall be transcribed, and the copies filed in the office to be established in the said third circuit, or said copies may be filed in the office at Belleville, and the originals filed in the office of the third circuit, as the commissioners of said circuits may agree.

*Ordered*, That the office of the southern district, now established at Belleville, shall remain as an office of the second judicial circuit ; the district office of the western district, now established at Jacksonville, shall remain there, and be deemed as an office of the first judicial circuit.

*Ordered*, That all resolutions and ordinances heretofore passed by this board, coming within the purview, or conflicting with the provisions of any of the foregoing ordinances and resolutions, be, and the same are hereby, repealed.

18. *Ordered*, That the principal engineer shall be held responsible for the official performance of the assistant engineers, in their respective districts ; and should there be any delay or damage occurring to the contractors, or the State, for the want of sufficient work definitely located, or grade, or centres given after the location shall have been completed, or any directions to contractors respecting the execution of their contracts, it shall be the duty of the acting commissioner to direct the principal engineer to take the field in person, and immediately see that the engineering duties in his district are performed ; and should the engineer refuse to obey the orders of the acting commissioner, respecting the performance of his official duties, he shall be liable to an immediate discharge from his office. It shall be the duty of the principal engineer to inspect the work performed by the contractors as often as required by the acting commissioner, and approve of all materials, before the same shall be used for the construction of the road, and



shall certify what per cent. can be safely paid upon the work done by contractors, and shall approve all bills, pay rolls, accounts, &c., connected with the construction of the road, previous to their being paid by the acting commissioner.

*And be it further ordered,* That the acting commissioners, upon the representation of the principal engineer of their respective districts, of the incompetency or wilful neglect of any assistant engineer in performing his official duties, as directed by the principal engineer, to immediately discharge the same from his office, and employ new assistants, who are both competent and willing to perform the duties incumbent upon them.

19. *Ordered,* That the acting commissioner of the first judicial circuit be authorized to cause a survey for a lateral route from the main line of the Northern Cross road of the most eligible point on said road, to the town of Naples, on the Illinois river; and that a report of said survey be made to this board at its next meeting, and that said report contain all information necessary to enable this board to determine the propriety of constructing a lateral way to said town: *Provided,* That the point of commencement upon said Northern Cross road shall not exceed five miles from said town.

20. *Ordered,* That each commissioner shall open a separate book for each work under his charge and superintendence, and also one for general expenditure, and that he debit himself to the fund commissioners of the State of Illinois, in the proper book, for the amount of any draft by them paid, and pass to his credit the amount of the several vouchers by him obtained in the disbursements, for any of the objects under his superintendence and control; that, in all cases, duplicate receipts or vouchers be taken separately for the different objects of expenditure, and from time to time the commissioner make separate returns to the central office, from the several accounts in his office, and in all cases accompanying said returns with the vouchers therein referred to; that all disbursements, whether made by himself or agent, shall be made in his own name.

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*To the honorable the Board of Commissioners of Public Works:*

The undersigned, acting commissioner of public works for the second judicial circuit, respectfully reports to the board, at their semi-annual meeting for December, 1837, his proceedings as acting commissioner, for and during the last half year, as follows:

The survey and location of the Alton and Mount Carmel railroad, which in my last report was stated to be in progress, have been completed; and full returns thereof, from the engineer, are in a course of preparation, and will shortly be filed in the office of the board, as required by law.

The survey of the Belleville and Lebanon branch of the said road has also been effected by the same party, and the results will be returned and filed, in connexion with those of the main line.

The party which had been engaged on the foregoing surveys have subsequently been engaged in preparing work, for the commencement of the operations of contractors, on the jobs of work let on the great western mail route, between Vincennes and St. Louis, and more recently in preparing for contract the line of railroad between Alton and Edwardsville, on the route

of the Mount Carmel and Alton road. This section of that work I have advertised to be let, at the district office in Belleville, on the 2d day of January next, and now ask the confirmation of the board of this proceeding.

That portion of the Alton, Hillsborough, and Paris railroad, which runs through the second judicial circuit, and attached to the western engineering district, has not yet been surveyed, excepting that part thereof which lies between Lower Alton and Upper Alton, a distance of about two and a half miles. The principal engineer of that engineering district, (Mr. Bucklin,) who made the survey, has reported that, on this portion of the work, there are serious obstacles to an eligible and economical location within the limits for vertical inclination of grade now adopted by the board; and it may become necessary for me to apply to the board for a special order, in regard to this specific work, in relation to this subject. I have to inform the board that the citizens interested in this railroad are exceedingly anxious that the necessary steps should be taken to place a fair proportion of this work under contract, simultaneously with other works under the jurisdiction of the board. This survey has been delayed by circumstances beyond my control, and I presume, and believe, beyond the control of the commissioner of the first judicial circuit. I would, therefore, suggest and request that an order be made for letting a fair proportion of this work, so soon as the necessary surveys, location, and estimates shall have been made, and the entire practicability of the work ascertained. The expenses of the surveys of this work, so far as they have been executed, have been paid by me, and will be exhibited in my accounts rendered.

The survey of the great western mail route between Vincennes and St. Louis was executed by R. A. Gilpin, assistant engineer, and the plans, profiles, and estimates of such parts as were designed to be placed under contract the present season, were made out, certified, and filed according to law. A letting of the work on that section of the route lying between Belleville and St. Louis, being the first that was surveyed and ready for contract, was had at Belleville on the 25th of August last. This part of the line was subdivided into six sections; and three of them, embracing the lighter portions of the work, were let at that time at a small advance above the estimate of the locating engineer. The bids received for the remaining three jobs, two of which embraced the heavy and expensive work on the American bottom, between the Bluffs and St. Louis, were rejected in consequence of their exorbitancy; and these jobs, together with some other jobs on the line east of Belleville, and extending to the Kaskaskia River bottom, were advertised for contract on the 9th of October ensuing. At this letting, two of the jobs, which were laid over from the August letting, were taken at a reduction in cost of ten thousand and two hundred dollars below the lowest bids which were received for the same work in August. But a small portion of the newly advertised work could be let, in consequence of the bids received being deemed too high. The jobs of work at the Kaskaskia bottom, and at Shoal Creek bottom, in Clinton county, were unavoidably postponed to a future letting, advertised to take place in January next. But as the condition of the said road at these points, and particularly at the former one, from the report of the engineer sent expressly to examine it, absolutely required immediate attention, to prevent the road becoming impassable during the winter, I have ordered the improvements to be commenced by a superintendent, with instructions to confine his operations to carrying on the job so far only as would render



this point passable, until the work could be let to a contractor. The work has progressed to the satisfaction of the engineer, and thus far fully within the estimates. The work executed forms a portion of the job to be let, and the amount executed by the superintendent will be deducted from the amount of the whole job to be placed under contract. The contractors on the line of mail route have, thus far, prosecuted their contracts with efficiency and success; and I am pleased to say that the operations on this road, during the present season, have given great satisfaction to the people and to the travelling community, and have had the effect to settle public opinion in favor of our system of internal improvements, by giving an assurance of the certain progress and final completion of the public works.

Upon the completion of the survey of the western mail route, Mr. Gilpin, as was originally designed, was transferred to the party engaged in the survey and location of the Central railroad. There is but one party of engineers in my circuit, consisting of the principal engineer of the southern district, and Mr. Terrel and Mr. Scheels, assistants. Mr. Beach was engaged in August last, as a junior assistant, and has been engaged in the office in Belleville, and incidentally and occasionally in the field. These gentlemen are all the engineers at present engaged in my circuit.

The board will have presented to them my accounts for receipts and disbursements up to the first day of October, to be examined and audited. The accounts for the months of October and November, I shall be under the necessity of deferring until a subsequent meeting of the board, in consequence of not being able to receive and have in readiness all the vouchers in relation thereto. The accounts up to the first day of October, are exhibited in the monthly statements, (marked "A,") for the months of July, August, and September, which, together with the accompanying vouchers, are herewith submitted.

The contracts on file in the office of the board will show the specific jobs, and, in connexion with the plans, profiles, and estimates, the amount of work let to contractors.

All which is respectfully submitted.

WILLIAM KINNEY.

BELLEVILLE, *December 4, 1837.*

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RAIL ROAD OFFICE, 1ST JUDICIAL CIRCUIT,  
*December 1, 1837.*

The undersigned, Murray McConnel, one of the commissioners of said board, and acting commissioner of the 1st judicial circuit of said State, submits the following statements as his report to the said board:

Since the last meeting of said board, the said commissioner has caused that part of the Northern Cross railroad situated between the Illinois river and Springfield to be surveyed, located, and put under contract; a report of which was made to you as president of said board in July last, which report is now on file in the office of the secretary of said board, and is here referred to, and made a part of this report.

Immediately after the letting of said work, as shown in said report, the contractors entered with spirit and vigor upon the performance of the work, and their progress since that date gives sufficient assurance of the final completion of the same within the time limited.

The commissioner has spared no pains in procuring the right of way over the various tracts of land upon which said road is now being located, between the Illinois river and Jacksonville, in which he has been greatly aided by Mr. Cloud, the clerk of the western district. Tracts of land have been procured for the use of the State, whereon to erect offices, depots, and other necessary buildings for the use of said work, both at Jacksonville and Springfield.

A building has been erected at Jacksonville upon said land for the offices for the engineers and clerk of the western district, and which will be necessary, both while the road is under construction, and after the same is completed.

Since the report of July last, all that part of the Northern Cross railroad, situated between Springfield and Decatur, has been surveyed, and that part between Springfield and the east bank of the Sangamon river, has been permanently located, and put under contract, (including the viaduct over the Sangamon river,) copies of which contracts may be seen filed in the proper offices, as the law directs.

All that part of the Pekin and Bloomington branch of the Central railroad, situated between Pekin and Mackinaw town, on the Mackinaw river, has been surveyed; and that part between Pekin and Tremont, the county seat of Tazewell county, has been permanently located and let to contractors, and a day in January next appointed to enter into said contracts according to law.

Owing to the great distance between the places of residence of some of the contractors and this office, and owing, also, to the inclement season and the press of business in the office, it was impossible sooner to finally complete this business. Said contracts will be filed in the proper offices so soon as executed. The commissioner would recommend that the grade of this road be changed even beyond fifty feet to the mile, with a view of lessening the cost of construction, and the contracts were deferred to procure an action of the board upon this recommendation.

Much difficulty was encountered in the location of this road. This was principally owing to the great and sudden elevation of the country in the direction of Bloomington above the level of the Illinois river at Pekin, and to the high and undulating surface of the country.

It was found that said road could not be made at a grade of forty feet to the mile. To make said road within any reasonable cost, a grade of fifty feet to the mile was necessarily adopted. From all these facts, it is evident that the cost of this road will be greater than some other roads in this circuit. But the importance of the work, the great number of inhabitants to be benefitted, and the great extent of fertile country to be accommodated, will justify even a greater expenditure for its construction.

Every effort has been made by the officers and engineers in charge of the public works in this circuit, to forward the same and to economize in the location and construction thereof. The cheapest and most eligible routes have been selected for said roads, without regard to individual interest, but with a view to the cheapness and permanency of the work, and the general good of the whole. That those officers have arrived to perfection in the performance of their several tasks is not pretended; but it is believed that, in all instances, they have performed their duties with a rigid and scrupulous determination to do right, and to strictly guard the interest of the State.



The first surveyor's company entered upon field duty about the twentieth of May last. Great difficulties were encountered from high waters, continued rains, sickness of hands and engineers, and a general want of information among the hands employed of their necessary duties in this new employment. No more than two companies have been employed in this circuit at any one time since the commencement of the surveys, and part of the time only one. Yet there have been near four hundred and fifty miles of approximation and experimental lines surveyed. About seventy-five miles of railroad have been permanently located and put under contract. A great portion of this located road passes over the broken country bordering upon the Illinois river, and some of its tributaries, and embraces the most difficult parts of the public improvements in this circuit. In addition to this, a great amount of work has been done by the contractors between the Illinois river and Jacksonville, embracing an extent of active operations of about twenty-four miles in length. This work required the almost constant attention of the commissioner, and two or more of the engineers employed in the circuit.

The engineering companies were discharged about the middle of October, and the expenses in every possible way curtailed. Several assistant engineers are now necessarily engaged in making profiles, plans, and drawings of the works now under contract. They have as yet been unable to furnish the maps, plats, and profiles necessary to be filed in the office of the secretary of the board, but the same will be made and filed in the course of this winter.

The total amount of money drawn by me as commissioner since the first commencement of my services as such, is equal to forty-seven thousand five hundred dollars; and the total amount of money expended by me, upon all the public works under my charge, since the first commencement of my services as commissioner up to the first day of the present instant, is equal to thirty-three thousand eight hundred and thirty-six dollars and twenty-one cents. A part of this expenditure was for mathematical instruments, horses, wagons, and camp equipage, now on hand and ready for use so soon as the spring opens; but by far the greatest portion of said expenditure is for work actually done upon the Northern Cross railroad.

This expenditure is properly chargeable to the objects hereinafter named, in the following proportions, to wit:

To the general internal improvement fund	-	-	\$10,891 20
Northern Cross railroad from Quincy, &c.	-	-	22,240 61½
Pekin and Bloomington branch of the			
Central railroad	-	-	604 39

The reports of the engineers, consisting of that of Mr. Bucklin, chief engineer, Mr. Hawn, and Mr. Pollock, senior assistant engineers, accompanying this report, and are here referred to as part of the same, and as giving all the necessary information relative to said surveys.

All of which is respectfully submitted.

M. McCONNEL,

*Commissioner 1st Judicial Circuit, Illinois.*

To the Hon. WILLIAM KINNEY,

*President of the Board of Public Works*

*for the State of Illinois.*

VANDALIA, December 4, 1837.

The undersigned, acting commissioner for the 3d judicial circuit, has the honor to report to the board of commissioners of public works the following detail of operations and proceedings, for the six months preceding the 1st of December, 1837, and also the amount of moneys received and expended for and on account of the public works.

1. *Central railroad.*—No surrender of the company charter on this road having been made according to law, the commencement of surveys was delayed until the passage of the acts, supplemental to the act to establish and maintain a general system of internal improvements, approved July 21st, 1837. So soon as this authority was obtained, the engineers commenced the examination and survey of the route between the mouth of the Ohio and Vandalia. An experimental line is thus obtained through the route.

2. *Shawneetown and Alton railroad.*—The surveys on this route have been extended from Shawneetown to Big Muddy river, and a definite survey and location been made from Shawneetown to Equality, a distance of about eleven miles.

## STATEMENT OF RECEIPTS AND EXPENDITURES.

Name of the work.	Am't of Receipts.	Am't of Expenditures.
Central railroad - -	- \$4,500	\$3,000 00
Alton and Shawneetown railroad -	6,500	1,735 59
Alton and Mt. Carmel railroad -	1,500	1,732 26
General fund - -	- 1,000	

NOTE.—Some acts the undersigned has not been able to have transmitted to the central office in time for this report; they will be submitted hereafter. The whole of which is respectfully submitted.

ELIJAH WILLARD,  
*Acting Commissioner Public Works.*

## SEMI-ANNUAL REPORT TO THE DECEMBER MEETING, 1837.

*To the Board of Commissioners of Public Works of the State of Illinois:*

The undersigned, acting commissioner for the 4th judicial circuit, would present a semi-annual report of the progress made in the internal improvements of the State, under his superintendence, up to the 1st day of November, 1837.

On the 17th day of April last, I employed A. W. Hoyt as principal engineer for the eastern engineering district, (as stated in my last report,) at a salary of three thousand dollars per annum, his time to commence the 1st of May, and authorized him to go to the eastern States to procure assistant engineers, mathematical instruments, &c., with a view to the organization of two engineering parties; he employed R. J. Cleveland as a senior assistant, at a salary of fifteen hundred dollars per annum, and A. Bielaski as a junior, at eleven hundred dollars, also C. S. Williams as a sub-assistant, at one dollar and thirty-two cents per day, and on the 8th day of June, com-



menced the surveys on the Paris and Shelbyville railroad. On the 15th day of June, J. K. Rychlicki arrived, who had been employed as a junior assistant, at seven hundred and fifty dollars per annum; on the 1st of July, Messrs. Cleveland and Rychlicki went on to the Northern Cross railroad, and Messrs. Bielaski and Williams, with a party partially organized, continued the surveys on the Paris and Shelbyville road until the 15th of August, when C. T. Arms, jr. arrived (who had been employed at fifteen hundred dollars per annum) and took charge of the party, and the approximate location from Terre Haute, Ind., to Shelbyville, a distance of something over seventy-one miles, which was completed about the 1st of November.

Mr. Cleveland finished the location of the Northern Cross railroad from the State line of Indiana to Decatur, a distance of eighty-three miles, on the 26th of October, and commenced the location on the Central railroad, between Decatur and Shelbyville.

The undersigned advertised and let contracts on the Great Western mail route on the 6th of September, for the improvement of the Purgatory swamp; the contracts to the amount of near thirty thousand dollars were taken by responsible men, considerably below the estimate of the engineer who surveyed the work, and the work is progressing.

Contracts were also entered into on the 8th of September, for the improvement of the Little Wabash bottom, on the same road, and the contractor is prosecuting his work with efficiency. Contracts were entered into at the same time for building bridges across Fox river, Elm river, and Raccoon creek, at which points but little has yet been done.

Early in June last, Colonel Thos. H. Blake, the acting commissioner of the Great Wabash, on the part of Indiana, and the undersigned on the part of Illinois, employed Mr. David Burr as principal engineer to superintend the improvements on the river, at a salary of two thousand dollars, and he has since been actively engaged in making surveys and examinations of the river, at and adjacent to the Grand rapids, and we have advertised to let contracts on the 22d of November, for the delivery of seven thousand cubic yards of limestone, for a lock and abutments, with a view to improve the rapids by slack water.

The undersigned has drawn on the fund commissioners for the following sums, viz: on the 7th of April, two thousand dollars, for the Paris and Shelbyville railroad, which was paid about the 5th of June; on the 5th of June, two thousand dollars, for the Northern Cross railroad; on the 21st of June, four thousand dollars, chargeable to the general fund, and six thousand dollars for the Great Western mail route.

He has also expended the following sums, viz: on the Paris and Shelbyville road, two thousand four hundred and fifty-five dollars seventy-five and one-half cents, (a part of which sum will be refunded by an arrangement by the commissioners of Indiana, for the time occupied by the engineering party between the State line and Terre Haute, in ascertaining the proper intersection at the State line;) on the Northern Cross railroad one thousand eight hundred and eighty-eight dollars twelve and three-fourth cents have been paid out; and for objects not chargeable to my particular work, such as wagons, teams, camp furniture, office furniture, mathematical instruments, stationery, salary of principal engineer, his own compensation, &c. &c., four thousand five hundred and eighteen dollars fifty and one-fourth cents. Leaving a balance unaccounted for on the 1st of November, of five thou-

sand one hundred and thirty-seven dollars and ninety-seven and one-half cents. All of which is respectfully submitted.

M. K. ALEXANDER.

DECEMBER 4, 1837.

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*Appendix embracing a partial report of the operations under the superintendence of the commissioner of the 4th judicial circuit, for the month of November, 1837.*

On the 6th of November, the undersigned drew on the fund commissioners for ten thousand dollars for the mail route, and three thousand dollars for general expenditure.

On the 7th an estimate was made by the engineer in charge of the work on the mail route of the amount of work done on the Little Wabash bottom, and two thousand three hundred and thirty-four dollars and thirty-three cents paid to the contractor on said estimate, withholding fifteen per centum of the amount of work done as security for the faithful performance of the contracts; an estimate was made of work done in the Purgatory swamp on said road on the 21st, and three thousand six hundred and eighty-eight dollars fifty-seven and three-fourth cents, paid to the contractors, reserving the same per centum as above.

One hundred and forty-seven dollars has been paid out on said road for advertising, printing, engineering, &c.

On the 22d, contracts were let for the stone advertised for, to be delivered at the Grand rapids of the Wabash, considerably below the estimate of the engineer.

Seven hundred and thirty-two dollars and thirty-four cents have been paid out on the work at the rapids.

The engineering party engaged on the Central railroad, between Decatur and Shelbyville, have completed the location between those points, and the party disbanded.

After the location of the Paris and Shelbyville road was completed, the party commenced on the Central railroad, between Shelbyville and Vandalia, in which work they are now engaged.

By an act of the General Assembly of the State of Illinois, passed on the 4th of March last, Samuel Munday was required to pay over to the board of public works any unexpended balance of a former appropriation for the improvement of the Wabash; in accordance with said law, he paid over to the undersigned, on the 24th of November, two thousand eight hundred and twenty-six dollars and twelve cents; eight hundred and fifty-one dollars and twelve cents of which the undersigned paid to P. H. Bagwell & Co., on account entered into by said Munday, for work at Coffee island, and one hundred dollars to Edward Smith, for engineering under the direction of the said Munday.

The reports of A. W. Hoyt, principal engineer of the eastern engineering district, and David Burr, principal engineer on the Great Wabash, are herewith submitted and referred to, and made a part of the accompanying report and appendix thereto.

All of which is respectfully submitted.

M. K. ALEXANDER,  
Commissioner.



*To the honorable William Kinney, president of the board of public works of the State of Illinois:*

The undersigned, commissioner of the 5th judicial circuit, has the honor to report the following statement of the progress of the public works within the said circuit.

The survey of the Peoria and Warsaw railroad was commenced about the middle of June, under the direction of Mr. John W. Ingersoll. Considerable difficulty was found in the location of this road from Peoria to Canton, and also at the crossing of Spoon river and Crooked creek. Between the two first named points, two routes were carefully surveyed, and estimates made of the expense of the road on each. The country along the whole line has been carefully examined, and where a preference for a particular route was not obvious, approximation lines have been run on all that appeared plausible. The whole route is believed to be quite as favorable as was anticipated, and the expense will probably not much exceed the appropriation of the Legislature for the object. The survey has been conducted with much skill and assiduity by Mr. Ingersoll and his party. His report, annexed to that of James Seymour, Esq., principal engineer of the northern district, is before the board of public works. It is believed that a number of miles of this road should be put under contract, so that the work may be commenced early next spring.

That part of the Northern Cross railroad, included in this circuit, has also been surveyed. The report of Mr. H. P. Woodworth, the engineer having charge of that survey, is before the board.

As this survey was not commenced until some time in September, there has not been time for the engineer to furnish a detailed report of the same. This, with the necessary maps, profiles, and estimates, will be made during the present winter; and it is the opinion of the undersigned that a portion of this part of the work should be placed under contract as soon as practicable.

The amount of money received for the public works by the undersigned is as follows:

From the general fund	-	-	-	-	\$1,000 00
For and on account of the Peoria and Warsaw railroad	-	-	-	-	4,000 00
“ “ “ Northern Cross railroad	-	-	-	-	2,000 00
For sale of wagon, purchased for Peoria and Warsaw railroad	-	-	-	-	70 00
					<hr/> \$7,070 00 <hr/>

The amount expended:

General expenditures	-	-	-	-	\$927 14
On Peoria and Warsaw railroad	-	-	-	-	3,524 23
Northern Cross railroad	-	-	-	-	1,822 16
Cash on hand	-	-	-	-	796 47
					<hr/> \$7,070 00 <hr/>

A statement of the above disbursements, with the vouchers for the same, accompany this report.

All of which is respectfully submitted.

J. WRIGHT,

*Commissioner of the 5th Judicial Circuit.*

DECEMBER 5, 1837.

*To the honorable Wm. Kinney, president of the board of public works:*

The undersigned, commissioner for the 7th judicial circuit, has the honor to report, that since the meeting of the board in June last, so much of the Central railroad as lies within his circuit has been carefully and accurately surveyed under the immediate superintendence of Mr. H. P. Woodworth, assistant engineer.

The surveys of Mr. Woodworth, under the direction of the principal engineer, have been extended from the north line of McLean county, as far west as Rock river. This survey having been continued beyond the jurisdiction of the undersigned, it becomes necessary for him to explain that this course was taken from a sincere desire to advance the public interests, without any intention of encroaching upon the proper duties of others. Mr. Woodworth and party were already organized and actually in the field, and had, without the knowledge of the undersigned, carried their preliminary surveys beyond the limits of the 7th circuit, and it was then thought expedient to permit the survey to continue as far as Rock river.

The preliminary surveys of all that part of the Central railroad which lies within the 7th judicial circuit having been completed, it is the intention of the undersigned to locate several miles of this road, extending each way from the Illinois river, early in the spring, and to put the same under contract.

In a communication received from Mr. Woodworth, upon the subject of this road, he remarks: "So far as I can judge from my observations, without going into the detail of estimating, the route is a very feasible one; the grading will generally be easy, there being few cuts or embankments of any magnitude. On the whole, I should think this portion of the Central railroad would be less expensive in its construction than has been anticipated." The only difficulty attending any portion of this part of the road, is in ascending from the valley of the Illinois river to the top of the bluff; and this on the south side of the river can be easily overcome, but on the north side of the river much remains to be considered in the choice of routes, and it is apprehended that it will be impracticable to gain the summit on this side of the river, without adopting, for a short distance, a grade of at least one hundred feet per mile. It will, however, remain to make a selection after due examination, from all the routes surveyed; and in this vicinity a very careful examination of all the routes has been made, no time or pains having been spared at this point.

Mr. Woodworth and a proper number of assistants are now busily employed at this place in preparing plans and estimates of the several routes which they have been occupied in surveying. It will be the duty of the undersigned, under the direction of the board, to make suitable allowance and compensation to such persons of the surveying party as will be necessary to aid in perfecting the plans and estimates; and for this purpose



the undersigned would respectfully suggest that some just and equal rate of allowance for the whole of the persons so employed in the State should be decided upon.

The undersigned cheerfully bears testimony to the fidelity and zeal of Mr. Woodworth, the assistant engineer, and to the party acting with him; by their untiring diligence much labor was accomplished in a short period of time.

The undersigned has expended, since his appointment, the sum of six thousand and twenty four dollars eighty-one and three-fourths cents, and has received on account of the Central railroad, the sum of ten thousand dollars, leaving a balance now in his hands amounting to the sum of three thousand nine hundred and seventy-five dollars nineteen and one-fourth cents, which is more clearly exhibited by the accompanying statement of accounts.

E. PECK,

*Acting Com. of 7th Judicial Circuit.*

*To the Hon. Gov. Wm. Kinney, Elijah Willard, Esq., and General Milton K. Alexander, acting commissioners of public works of the 2d, 3d, and 4th judicial circuits :*

GENTLEMEN : The undersigned has the honor to submit the following brief statement, descriptive of the general progress of the examinations, surveys, location, and construction of the public works, in the southern engineering district, which have been intrusted to his supervision as principal engineer thereof. The field operations have been continued from the time of their commencement in the month of May last, until the present period, which circumstance, together with the attention which has been indispenibly devoted to the letting of contracts on the line of the great western mail route, and to the subsequent prosecution of the contracts, have rendered it impossible for me to submit a report in detail at this time. This duty has necessarily been deferred until the closing of the field operations for the season, which being now done, will forthwith be commenced, and prosecuted with all possible despatch.

*Of the Alton and Mount Carmel railroad.*

The examinations, surveys, and location of this work have been made, chiefly under my personal charge and superintendence, assisted by Mr. W. Terrel, as senior assistant. The preliminary survey and location of the main line, from Mount Carmel to Alton, was completed during the latter part of the month of August last, and that of the Belleville and Lebanon branch of this work has subsequently been completed. The party have more recently been engaged in making the final and definite location of that portion of the main line which lies between Alton and Edwardsville, and preparing the work for contract.

The requisite plans, profiles, and estimates, preparatory to the letting of this work, will be completed in due time; and those for the eastern division, from Mount Carmel westward, can be prepared within the time necessary for advertising the work for contract, should the board order

any portion of it to be let, without any additional force, beyond what will be retained in the service for spring operations.

The survey and location of the Alton and Mount Carmel railroad has been made in detail, and with a view to its definite location, and it is believed that there will be found little or no necessity for any material deviation from the present line. At a few points, which will be designated in the detailed report, it may be advisable to make some further examinations, with a view to minor improvements in the line, but these will not affect the location at points designated by law.

From an inspection of the map of the country over which this line of work passes, it will appear that the line must necessarily intersect the various general depressions in the country, nearly at right angles. The obstacles which this feature in the country might be supposed to present, to a cheap construction of the work, are few and of limited extent, and are easily overcome within the limits prescribed by the board for inclinations in the vertical and curvations in the horizontal line; and without increasing to any material extent, in any one instance, the distance between designated points. The numerous valleys which the road intersects, are calculated to furnish the best materials for the superstructure of the railway, thus obviating the necessity of distant transportation. This is peculiarly the case with the Bon Pas, Little Wabash, Skillet fork, Kaskaskia, Silver Creek, and Cahokia valleys. The facility for obtaining materials for the construction of the work, from the Great Wabash and White rivers, will add much to the economy in the cost of the eastern division. The cost of graduation of the whole line will be moderate, and particularly those portions immediately contiguous to the Mississippi and Great Wabash rivers. The total length of the line is a fraction over 153 miles.

#### *Of the Shawneetown and Alton railroad.*

The commencement of the surveys of this work was deferred until late in the season, in consequence of the failure of the company incorporated to construct it to comply with the requisitions of the law, in regard to the surrender of the charter. The operations on this line have been under the charge of Mr. Lathope, and who, as I am informed, has progressed to the satisfaction of the commissioner in special charge of the work. Not having received any recent report from the engineer, I am unable to give a full description of the operations, or of the nature of the line. But I have the pleasure to state, from the commissioner's verbal report, that the line so far surveyed is of the most favorable and satisfactory character; and that the work from Shawneetown to Equality can be fully prepared for contract, and made ready for letting, within the period required for publishing advertisements thereof.

#### *Of the Great Western mail route between Vincennes and St. Louis.*

This work was surveyed by Mr. Gilpin, assistant engineer, and the portions of the work, for which specific appropriations were made by law, and some other portions which most needed improvement, have subsequently been placed under contract. The work has generally been taken at fair prices, and at small advances above the estimates of the engineer on the western, and at prices below them on the eastern division; and the con-



tracts have mostly been commenced and prosecuted with an energy that gives a reasonable assurance of the completion of the jobs within the time limited in the contracts. Owing to the difficulty of procuring laborers, and other circumstances beyond the control of the contractor, there may be some exceptions as to the time of completion of the jobs to be executed at the present season, but the work will be so far advanced or placed in such a state as to present little or no inconvenience to the travelling community, in consequence of its unfinished condition. From a late reconnaissance of the whole line, for the purposes of inspection and making estimates, I am pleased to be able to say, that there exists a manifest disposition on the part of the contractors to prosecute their respective jobs with fidelity and all convenient despatch. An estimate of the probable amount of funds, requisite to meet the estimates of the present month, will be made out and submitted.

*Of the Kaskaskia and Little Wabash rivers.*

The survey and examination of the obstructions to the navigation in the former river have been deferred by the State authority, in consequence of this service having been performed, during the present year, by the authority of the General Government. Those on the Little Wabash, have not as yet been commenced, for want of the adequate assistance requisite for the organization of a party to this service.

All which is respectfully submitted.

EDW. SMITH.

VANDALIA, December 7, 1837.

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VANDALIA, Dec. 5, 1837.

*Hon. Wm. Kinney and Elijah Willard, commissioners :*

GENTLEMEN: Herewith enclosed I have the honor to submit a report of the operations of that portion of the Central railroad, the engineering department of which you have done me the honor to intrust with me. You are aware, from the situation of affairs on this road, that I can make no very detailed report at this meeting; and a general description of the late survey is all that can possibly be reported.

Very respectfully,

Your obedient servant,

J. FREEMAN,

*Principal Engineer Central Railroad.*

*The honorable the Board of Commissioners of Public Works :*

I have the honor to submit the following report of operations on the Central railroad :

That portion of the State to which my attention has been particularly directed, is drained either into the Mississippi or Ohio rivers. The principal water courses which discharge into the latter river, are Cash and its tributaries; and of those which discharge into the Mississippi river, the Kaskaskia and Big Muddy rivers, and Clear creek, may be considered of the first importance. Cash river, in its lower sections runs through a series of alluvial swamps and flats; in its upper sections, through a very

elevated and broken ridge or table of land, extending across the country from the Ohio to the Mississippi. On the west edge of this table of land are the sources of Clear creek. The branches of Muddy, on the south side, also take their rise on this table, and run in deep and narrow vallies towards the north, to their debouche; north of Big Muddy the country is more uniformly level; and even the division ground between Kaskaskia and Muddy vallies, is of no great comparative elevation. The valley of the Kaskasia is very extensive, with many streams intersecting it in every direction, tending towards the main river. The country is of very gradual descent to the river, and the channels of the tributaries are not greatly below the general level.

The ridge south of Muddy is of sandstone formation, except a small section of twenty-five or thirty square miles of limestone in the vicinity of Jonesborough. North of Muddy, but little rock, of any kind, makes its appearance.

This river is also the general division between the prairie and timber lands.

Through this country I have sought a passage for a railroad, according to the provisions of the law supplemental to the internal improvement act, approved July 21, 1837, and the instructions of the honorable board.

By examination of the maps of this portion of country, three routes would obviously present themselves. The first in importance, is the most direct, leading across the country, and making use of every means which it affords to obviate the difficulties attending the transit of a road through a hilly and intricate region.

Another route would be, to avoid the higher ground, by taking a more westwardly direction through the Mississippi bottom, until egress would be easy.

And a third, to pass very considerably to the east, and avoid the intricacies of Cash river.

Owing, however, to the advancement of the season when the Legislature had authorized the prosecution of the work, the full examination of all these routes could not be had, and my instrumental surveys have been confined to the first mentioned route.

The following is a brief description of the course of this line: It will leave Cairo, and follow up the Mississippi and Cash river bottom, to near the big bend of Cash, where a small creek (Canelly) and one of its branches are made use of to advance the line. From the head of this creek, the course is down a branch of Cooper's creek, crossing the latter, and running in the valley of Mill creek. Mill creek is used to its extreme source on the ridge dividing it from Clear creek. This ridge is crossed, and the course pursued down a branch of Clear creek to its junction with another branch coming in from the north, up which the course is directed to the main summit of the country. This high ground is kept to the head of Drury creek, whose valley is occupied throughout its whole length to Crab Orchard creek.

Crossing Crab Orchard, and the ridge dividing it from Muddy, we arrive at the latter stream above the mouth of Little Muddy. The high ground between the Middle fork and Little Muddy is then occupied to Crooked creek, a considerable tributary of the Kaskaskia river. This, as well as the East fork, North fork, Patoka, and Richland creek, are crossed transversely. Hickory creek is passed in the bottom common to it and the Kas-



kaskia river. The Kaskaskia is crossed a short distance below Vandalia, and the entrance effected by aid of a depression on the south edge of the to win.

The season being far advanced, the surveys were closed until they can be resumed with advantage.

On this line, advantageous grades, with easy curves, can be generally obtained ; but a comparison cannot be instituted with the other routes until further surveys can be had.

Respectfully submitted,

J. FREEMAN,

*Chief Engineer Central Railroad.*

VANDALIA, 5th December, 1837.

EASTERN ENGINEERING DISTRICT OFFICE,  
*Paris, Edgar Co., Illinois, Dec. 1, 1837.*

DEAR SIR : I arrived at Paris on the 15th November, the day you left for the Wabash river.

At the railroad office, I found my assistant, Mr. Arms, who informed me of your wish to have "a statement of the progress made in the surveys, with a rough estimate of the cost of constructing the cross railroads in the eastern engineering district of the State, with the model of the track as recommended for adoption, and forwarded to Vandalia on or before the 3d December," to enable you to report to the board of public works of the State of Illinois.

I have been incessantly employed since my arrival, in fulfilling your orders, and I herewith transmit the result.

The approximate location of the Northern Cross railroad from the eastern line of the State, in the direction of Lafayette, in Indiana, to Decatur, Macon county, Illinois, is completed. This line commences at a point on the eastern line of the State, about four miles north of a direct line from Danville, Vermillion county, Illinois, to Lafayette, Indiana, and runs straight to Danville. At Danville there are two curves of 4,000 feet radius each, which carries the line through the town and over the Big Vermillion river ; thence the line runs straight  $6\frac{1}{4}$  miles, to Butler's point, where there is another curve, of 6,000 feet radius ; thence straight  $17\frac{1}{2}$  miles, to the town of Sydney. At Sydney there is a curve of 16,000 feet radius, of 9 degrees ; from that curve the line is straight  $47\frac{3}{4}$  miles, to Decatur.

There are but two obstacles, worthy of note, to the construction of a railroad upon the line surveyed. The first is the passing of the Big Vermillion river, near Danville ; the second, the crossing of the Sangamon river, 6 miles east of Decatur. At the former place, I have estimated a bridge of 220 feet in length ; and at the latter, 250 feet. Both bridges to be built upon Long's plan, treble bracing for the middle stringers, to be supported by timber pyramids, based on stone work.

The superstructure of the road I have estimated to be built according to the model forwarded to you. For details, I refer you to the estimate.

The approximate location of the Central branch railroad, from Shelbyville, Shelby county, to the State line, between Paris, Edgar county, and Terre Haute, Indiana, is also completed ; and that part between Paris and

the State line, is definitely located for grubbing and clearing. I have also continued the approximate location of the road from the State line to Terre Haute, and forwarded an estimate (a copy is transmitted to you) to Col. T. H. Blake, canal commissioner for the State of Indiana, with a plan of the line surveyed.

The location of the Central branch railroad commences upon the east line of the State, as before stated, and runs 10 miles 2,080 feet, to Paris, with but one curve, and that is of 4,100 feet radius. From Paris to Charleston, 27 miles, the line is straight; and as the grade descends from Paris to the Embarrass river, and ascends again to Charleston, a telescope at either depot will command a constant view of the entire road between these two points; an advantage which but few roads possess. Thirty-two miles of the line between Charleston and Shelbyville are straight; and there is no curve less than 4,000 feet radius between these two points.

There are but three expensive points to be encountered upon the entire line. The first, is passing the Sugar creek, near Paris, for which a bridge of 500 feet in length is contemplated: the second, the passing of the Embarrass river, near Charleston, for which a bridge of 400 feet is required, and two heavy embankments: the last, the crossing of the Kaskaskia river, for which a bridge of 1,000 feet in length, with two heavy embankments, is estimated.

The approximate location of the Central railroad, from Decatur to Shelbyville, is completed, and the surveying corps disbanded; leaving but one engineering party now employed in the field, who are engaged upon the surveys of the Central railroad between Shelbyville and Vandalia.

The estimates annexed were computed without a careful adjustment of the grade, (which a want of time prevented,) which gives the quantity of work more than it will probably be when the definite location is completed; but I believe they are sufficiently accurate for your present use.

I have estimated the timber for the track at different prices, to correspond as nearly as possible to the difference of transportation: that near Paris being the lowest, as steam saw mills will be erected there, on the line of the road, to saw much of the timber to be used between the State line and Charleston.

Plans, profiles, drawings, and models, of all the surveys and form of construction, are in progress; and I hope, ere long, to give an estimate, in detail, and report to the board of public works of the State of Illinois.

Very respectfully, yours,

ARTHUR W. HOYT,  
*Engineer of the Eastern Engineering District,  
State of Illinois.*

General M. K. ALEXANDER,  
*Commissioner of the Board of Public Works,  
State of Illinois, for the Fourth Judicial District.*



## CENTRAL BRANCH RAILROAD.

*Length from the eastern line of the State to Shelbyville, Shelby county, Illinois, 71 miles 3,265 feet.*

Inclination of the planes, per mile, in feet.				Length of the inclination.	
				Miles.	Feet.
Level	-	-	-	11	1,843
From 0 to 10	-	-	-	27	2,966
10 to 20	-	-	-	23	4,985
20 to 40	-	-	-	8	4,031

*ESTIMATE of the branch of the Central railroad from the State line, between Paris and Terre Haute, to Shelbyville, Shelby county, Illinois.*

FROM THE STATE LINE TO PARIS.				
11,320 rods grubbing and clearing, at 62½ cents per rod	-	-	-	\$7,075 00
101,832 yards borrowed earth, for embankment, at 14 cents per yard	-	-	-	14,256 48
3,196 yards excavation, to be put into embankment, at 24 cents per yard	-	-	-	7,671 84
16,542 yards excavation, to be wasted, at 14 cents per yard	-	-	-	2,315 88
20 wooden culverts, at \$60 each	-	-	-	1,200 00
670 perches stone work, for culverts, at \$5 per perch	-	-	-	3,350 00
No. 1.— <i>Wooden bridge.</i>				
Trestle work	-	-	\$625 00	
400 feet bridging, at \$15 per foot, Long's plan	-	-	6,000 00	
Amount of first bridge				6,625 00
No. 2.— <i>Wooden bridge.</i>				
134 perches stone work foundation, at \$6 per perch, beds hammer dressed	-	-	\$804 00	
Trestle work	-	-	625 00	

## ESTIMATE—Continued.

500 feet bridging, at \$15 per foot, Long's plan - - - - -	\$7,500 00		
Amount of second bridge - - -		\$8,929 00	
Amount for grading - - - - -	-	-	\$51,423 20
Which is equal to \$4,947 41 per mile.			
<i>Superstructure.</i>			
<i>Timber.</i> —Stringers at \$20 per M, mud sills and splice pieces, at \$14 per M, keys at 2 cents each, sleepers at 14 cents each; making the cost of one mile of timber -			
	\$1,261 81		
<i>Iron.</i> —Rails per mile, 22 tons, at \$100 per ton - - - - -	\$22,000 00		
877 plates, 8 ounces each, 438½ pounds, at 12 cents per pound - - - - -	52 62		
7,038 spikes, 4½ inches in length, 2.21 oun- ces each, 971 pounds, at 14 cents per pound - - - - -	135 94		
Loss on iron, ½ per ct., being for spikes at the joints of the rails, &c. - - - - -	11 94		
Per mile - - - - -	2,400 50		
Rail laying: 320 rods, at \$2 50 per rod - - - - -	800 00		
Amount per mile - - - - -		4,462 31	
10 miles 2,050 feet, the distance from the State line to Paris, at \$4,462 31 per mile - - -	-	-	46,380 97
Passenger, merchandise, and engine depot at Paris, including turn outs and turning ta- bles. The engine-house to be built of brick, for four engines, and machine shop also of brick - - - - -	-	-	8,500 00
Amount - - - - -	-	-	106,304 17
Which is equal to \$10,227 51 per mile.			



## ESTIMATE—Continued.

## FROM PARIS TO CHARLESTON.

4,375 rods grubbing and clearing, at 62½ cents per rod	\$2,734 37
398,204 yards embankment, borrowed earth, at 14 cents per yard	55,748 56
121,211 yards excavation, to be put into embankment, at 24 cents per yard	29,090 64
46,756 yards excavation, to be wasted, at 14 cents per yard	6,545 84
32 wooden culverts, at \$70 each	2,240 00
420 perches stone work, for culverts, at \$5 per perch	2,100 00

*Embarrass river bridge.*

810 perches of stone work for piers, for trestles, beds hammer dressed, at \$6 per perch	\$4,860 00
Foundations for stone work	300 00
2 trestle and bolster frames, at \$1,000 each	2,000 00
400 feet bridging, at \$18 per foot	7,200 00

Amount of the bridge	14,360 00
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Amount for grading	-
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Which is equal to \$4,188 49 per mile.

\$112,819 41
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*Superstructure.*

Stringers, \$30; mud sills and splice pieces, \$25 per M; sleepers, 25 cents each; keys, 2 cents each; making the cost of one mile of timber	\$2,039 90
Iron, per mile, as on page No. 60, viz:	2,400 50
Rail laying, per mile, as on page No. 60, viz:	800 00

Amount for 1 mile	5,240 40
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Amount for 27 miles	-
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Depot similar to the one in Paris	-
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Amount	-
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141,490 80
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8,500 00
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262,810 21
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Which is equal to \$9,733 71 per mile.

## ESTIMATE—Continued.

## FROM CHARLESTON TO SHELBYVILLE.

4,400 rods grubbing and clearing, at 62½ cents per rod	\$2,750 00
356,479 yards borrowed earth, for embankment, at 14 cents per yard	49,907 06
44,969 yards excavation, to be put into embankment, at 24 cents per yard	10,792 56
45,012 yards of excavation, to be wasted, at 14 cents per yard	6,301 68
504 perches of stone work, for culverts, at \$5 per perch	2,520 00
40 wooden culverts, at \$70 each	2,800 00

No. 1.—*Wooden bridge.*

Trestle work	\$800 00	
500 feet of bridging, at \$8 50 per foot	4,250 00	
		5,050 00

No. 2.—*Wooden bridge.*

Trestle work	\$620 00	
600 feet of bridging, at \$8 50 per foot	5,100 00	
		5,720 00

*Shelbyville bridge.*

2,284 perches of stone work for the trestles, beds hammer dressed, at \$6 per perch	\$13,704 00
720 piles, driven for the foundation of the stone work, including \$100, the cost of the piling machine	1,576 00
Timber for six trestle frames, \$354 48 each	2,126 88
Framing and raising the 6 trestles, and fitting a bolster to each; each bolster containing 12,000 feet, board measure, \$1,200 a-piece	7,200 00



## ESTIMATE—Continued.

1,000 feet of bridging, Long's plan, treble brace work spans of 200 feet each, at \$20 per foot	- \$20,000 00		
Amount of bridge	- - -	\$44,606 85	
Amount for grading	- - -		\$130,448 18
Which is equal to \$3,811 56 per mile.			
34 miles and 1,185 feet of superstructure, at \$5,240 40 per mile	- - -		179,349 71
Depot similar to the one at Paris	- - -		8,500 00
Amount	- - -		\$318,297 89
Which is equal to \$9,300 32 per mile.			

## RECAPITULATION.

Cost of the road from the State line to Paris	- - -	\$106,304 17
Cost of the road from Paris to Charleston	- - -	262,810 21
Cost of the road from Charleston to Shelbyville,	- - -	318,297 89
Engineering and contingencies connected therewith	- - -	10,000 00

Total estimate of the Central Branch railroad from the State  
line to Shelbyville, being 71 miles 3,265 feet in length - \$697,412 27

Which is equal to \$9,737 89 per mile.

## NORTHERN CROSS RAILROAD.

*Length from the eastern line of the State to Decatur, Macon county,  
Illinois, 83 miles.*

Inclination of the planes, per mile, in feet.				Length of the inclinations.	
				Miles.	Feet.
Level	"	"	"	10	2,725
From 0 to 10	"	"	"	43	285
10 to 20	"	"	"	11	2,045
20 to 30	"	"	"	4	4,240
30 to 40	"	"	"	10	660
at 40	"	"	"	3	605

## ESTIMATE—Continued.

*ESTIMATE of the Northern Cross railroad, from the eastern line of the State to Decatur, Macon county, Illinois.*

10,055 rods of grubbing and clearing, at 62½ cents per rod		\$6,284 37	
1,183,433 yards of borrowed earth for embankment, at 14 cents per yard		165,680 62	
500,800 yards of excavation to be put into embankment, at 22 cents per yard		110,176 00	
59,900 yards of excavation to be wasted, at 14 cents per yard		8,386 00	
100 wooden culverts, at \$70 each		7,000 00	
924 perches of stone work, for culverts, at \$5 perch		4,620 00	
<i>Vermillion river bridge.</i>			
1,916 perches of stone work foundation of trestles, at \$6 per perch	\$11,496 00		
2 trestles and bolster frames, each \$1,554 48	3,108 96		
220 running feet of bridging, Long's plan, treble stringers, at \$20 per foot	4,400 00		
150 feet of trestle and frame work, to connect the embankment with the bridge, at \$5 per foot	750 00		
		\$19,754 96	
<i>Sangamon river bridge.</i>			
1,308 perches of stone work for the foundation of trestle work, at \$6 per perch	7,848 00		
Foundation	300 00		
2 trestles, with bolster frames, \$1,036 00 each	2,072 00		
250 feet of bridging, at \$18 per foot	4,500 00		
		14,720 00	
Amount for grading			336,621 95



## ESTIMATE—Continued.

*Superstructure.*

<i>Timber.</i> —Stringers, at \$25 per M, mud sills and splice pieces, at \$20 per M; keys at 2 cents each, sleepers at 20 cents each; making the cost of one mile of timber		\$1,671 85	
<i>Iron.</i> —Rails, per mile, 22 tons, at \$100 per ton		\$2,200 60	
877 plates, 8 oz. each, 438½ lbs. at 12 cents per pound		52 62	
7,038 spikes, 4½ inches long, 221 oz. each, 971 lbs. at 14 cents per lb.		135 94	
Loss on iron, ½ per cent, being for spikes at the joints of the rails, &c.		11 94	
Per mile		2,400 50	
<i>Rail laying.</i> —320 rods, at \$2 50 per rod		800 00	
Amount per mile		\$4,872 35	
Amount 42 miles			\$20,463 00
<i>Forty-one miles of superstructure.</i>			
Stringers, at \$30 per M, mud sills and splice pieces, at \$25 per M; sleepers, 25 cents each, keys 2 cents each, iron and rail laying the same as above, \$5,240 40 per mile			214,856 40
Passenger, merchandise, and engine depot, at Danville and Decatur, including turn outs and turning tables. The engine house to be built of brick, for four engines, and the machine shops also of brick, at \$8,500 00 each			17,000 00
Engineering and contingencies connected therewith			10,000 00
Total estimate of the Northern Cross railroad from the State line to Decatur, being 83 miles in length			\$783,117 05
Which is equal to \$9,435 15 per mile.			

*To the honorable the Board of Commissioners of Public Works :*

GENTLEMEN: In obedience to the instructions I have received from you, growing out of my engagement of the 24th of June last, to take charge of the improvements contemplated in the Wabash river, I proceed to lay before you a report of the measures taken to advance that object.

Immediately after the 24th of June last, I repaired to this place, as the point presenting the most formidable obstacles to be overcome, to which I had been particularly directed as the field for operations, and commenced a general though cursory examination of the country, in the vicinity of the Grand rapids, and the river from Vincennes to the Ohio.

The operations now pressing forward, in so many rivers in Kentucky and Pennsylvania, in preparing them for an uninterrupted navigation for steamboats, appears to point to that mode as the ultimate means which will at no long period be resorted to, for all the large tributaries of the Ohio; with this distinctly in view it was deemed necessary, as a preliminary step, before a plan could be adopted with judgment to form opinions approaching at least to correctness of the practicability for improvements below, and the kind which would ultimately be used, so that the plans devised for the Grand rapids might be in keeping and harmony with those which, at some future period, may be constructed between this place and the Ohio.

With slight exceptions, from Delphi to within ten miles of the junction with White river, the Wabash has a mild current of good width, and tolerably well defined banks, which confine the waters to their natural bed, except in time of floods. Below White river, evident changes are perceptible, the stream becomes expanded to something like double of its former width, its course more serpentine, it crosses its lowest valley from side to side, which is from three to eight miles wide, and in traversing the valley, changes its course frequently; forms cutoffs in the bends of the rivers, and rolls with its current vast volumes of sand. Between White river and the Ohio, the sand rock of the country is found in the river bed at three places: Coffee island, and the Little and Grand chains, and forms the ripples, which have been improved by Messrs. Gardiner and Mundy. At these places where the rock occurs, the river is susceptible of almost any kind of improvement which the extensive and increasing trade of the country may require. The great value of the trade of the valley of the Wabash would in a short time induce a slack water navigation of the river for the uninterrupted business of steamboats, if it were practicable to make such an improvement. But however desirable such an object may be, it is problematical, at least, from the character of the country, overflowed in time of floods, from three to eight miles in width, with the bed of the stream constantly changing, and its current rolling volumes of sand sufficient in a few years to fill up its entire bed, for a long distance, whether such a river can be generally converted into pools for slack water navigation. In such an event, it is doubtful the process of filling up the pools would go on rapidly for a few years, and then, to find way, the river would seek a new channel, and leave such works as had been constructed on dry ground.

Although the probabilities are adverse for the general improvement of the Wabash, by means of slack water navigation in its whole length, it is entirely possible, at some period of time, that at the shoals where the rock occurs, works of the kind may be erected; and this consideration, although remotely, had some weight in determining the plan for the works at the Grand rapids.



The Wabash below White river, for the small class of Ohio steamboats, is navigable the greatest length of time in each year, and for a much longer period than it is above, owing more to the shoals from the Grand rapids to Little Rock, than want of water from thence to Lafayette. Many inquiries relative to the length of time during which the ordinary steam navigation is used yearly on the river, have been made, above and below the confluence of White river, but from the conflicting statements it is difficult to form a correct opinion. The time varies doubtless in different years. During the present, there can have been but little or no time when the water has been too low for small steamboats to ascend the river to the rapids. A steamboat of ordinary light draught came there the last of October, when the water was depressed as low, probably, as it has been at any time this season; if it could have ascended the rapids it might have made way for a long distance up the river. From the best sources of intelligence that could be obtained, it is believed that when the improvements at Grand rapids shall be completed, that it will add three months at least in each year to the time in which steamboats can now ascend the Wabash above the confluence of White river.

The obstructions proposed to be remedied by the present improvements are the series of shoals and rapids, commencing one mile above the junction of White river:

1st. The Grand rapids, descent four feet in a half mile.

2d. The Hanging Rock rapids, two and one-fourth miles from the foot of the Grand rapids, descent one foot seven inches in half a mile.

3d. Cram's ripple and the ripples at Ramsay's and Beedle's mills are next in succession, four and one-fourth miles from Hanging Rock, descent three feet two inches from the surface of the water above the dam to Hanging Rock, the greatest part of which is within three and one-fourth of a mile from the dam.

4th. Little Rock rapids, from the head of which in half a mile is a descent of one foot and three inches; making in all a descent of ten feet. The water on the Little Rock shoals varies in depth in low water from four to one and a half feet.

In running the line of levels, the point of high water mark was assumed as the base line at the foot of the Grand rapids 21.57 feet above the surface of the water when the levels were taken. The highest point of rocks, on the shoals at Little Rock was 12.97 feet below this base line, and in contemplating the proposed work, to give three and a half feet depth of water over the rocks, the surface of the river must be raised to a point 9.47 feet below said base line, or in even number to nine feet six inches, which will be the point to which the weir or comb of the dam will be raised to when it shall be built.

To determine the best plan of overcoming this descent in the river, several plans, other than that of one dam and one lock, the plan adopted, suggested themselves. The first, if found practicable, was to introduce a feeder from White river on ground sufficiently elevated to lock by means of a canal into the Wabash, above and below the rapids, and leave the bed of the river in its natural state free for the great amount of trade passing it in flat and steamboats. Another plan, to make a canal from the upper part of the rapids, deep enough to be fed without throwing a dam across the Wabash, and in that manner leave the river free. A third one, to erect a dam at Hanging Rock to supply a canal to the foot of the rapids.

A slight examination sufficed to show the impracticability of the first,

and the inexpediency of the last two. The cost of construction was enough to decide the question ; but if they could have been made for a much less sum, it is doubtful whether they should have been adopted. The steamboat trade of the Wabash is immensely valuable, and this cannot be well accommodated in a canal ; the agitation of the waters produced by the motion of the steam vessels induces the necessity of paving the banks with stone, which injures the boats in their passage through them. Canals are obviously too narrow for the free operation of steamboats, whose motions in them are so constrained, and their progress so much impeded, that the utility of navigating canals by the agency of steam is a doubtful and unsettled question. The first of these canals would have been over seven miles in length, the latter over two.

These considerations were deemed sufficient to determine that the proposed works at the Grand rapids should be by means of locks and dams across the Wabash, of the necessary height to give sufficient depth of water for boats to pass at all times, the shoals and rapids in the first eleven miles above the mouth of White river, and whether one lock and one dam should be used for that purpose, or two, was the only question which remained undecided.

The height the waters require to be raised at the lower termination of the rapids near White river, to give three and a half feet over the highest point of the river bed at Little rock in the lowest stage of water, is twelve feet. This height, on a good foundation, such as will be used, is not too great to render a dam unsafe, and as a single dam and lock are more economical and more convenient than to surmount the same rise of waters by means of two, the use of one only should be preferred, provided the country is sufficiently elevated to sustain that height of water against the banks of the river.

In the event of building two dams, the site of the upper one would be at Hanging Rock, the lower one near the foot of the Grand rapids. The two sites are about two miles apart, and the water from the upper site to the extremity of the pool in the river above, would be at the same elevation, whether one or two dams should be erected. The only difference to the adjacent country, in relation to the height of the water, is for the distance between the two dams, which does not exceed two miles, and this difference in the height of the water would not be greater than three and one-half feet ; for in order to give the necessary depth over the rocks for steamboats to enter the lock at the Hanging Rock dam, a considerable portion of it would have to be submerged by the lower one. A dam at the foot of the rapids to overcome the obstructions in the river to Hanging Rock, and secure a sufficient depth of water to carry boats safely into the second lock, would be seven and one half feet in height above the surface of the river ; and to overcome all the obstacles proposed to be remedied, less than ten and a half feet above the surface of the water where the dam will be built.

The greatest part of the descent of the Grand rapids is within half a mile of the dam, so that the height to which the waters are raised above their natural bed is diminished four feet in that distance. The banks are high enough to confine the waters within them, except at the highest floods, during which the country is overflowed for miles in extent, with the exception of a few insulated points of sandrock ridges, which appear like islands in the surrounding waters.

The difference, therefore, in the height to which the surface of the river



will be raised by the use of one or two dams is inconsiderable, not exceeding three and a half feet for two miles in distance, but to obviate all objections on that account, in the estimates the cost of making guard banks from the lower to the upper dam sites on each side of the river has been calculated and provided for. The difference in the height of the lock gates and walls on the plan of two dams would have been three feet less than in one, provided the walls had been left at ten feet above the weirs or combs of the dams, and sometimes submerged in the waters of high floods, which, although avoided in the plan adopted, would not have rendered the works unsafe with the banks raised to the proper height, and well protected, and when the water was at that height, the dams would have made no obstruction to the passage of boats.

It is believed that all the advantages which can be claimed for two dams over one, are summed up in these items: of the height of the water, and the height of the lock gates and walls; both are inconsiderable.

But the plan of one lock and one dam is preferable on account of producing less delay and injury to steamboats to pass one lock than to pass two, of less delay of landing flat-boats, and the hazard of being drawn over the dam in the descending trade of the river, of an increased amount of water power, and greater economy in the cost of construction. It is usual to allow three feet for head and fall in building mills; on the plan of two dams, the difference in the surfaces of the water at Hanging Rock, above and below the dam, would have been only three feet, and therefore valueless for practical purposes; the available water power at the lower dam site six feet; on the same plan, but with one dam and one lock, the available water power will be nine feet fall. Therefore, if two dams and two locks could have been constructed for the same cost, the single plan ought to have been preferred. The cost of two, however, would have generally exceeded the cost of erecting one. For comparison:

*Plan of two dams and two locks.*

Cost of dam and lock at foot of Grand rapids	-	\$138,825 93
Cost of dam and lock at Hanging Rock	-	132,782 60
Total	-	<u>\$271,608 50</u>

*Plan of one dam and one lock.*

Cost of dam and lock near foot of Grand rapids	-	\$166,928 55
Difference	-	<u>\$104,679 93</u>

The plan of dam and lock was adopted, not only on account of the great difference of cost in its favor, but also of its greater utility. The height of the dam will be sufficient to give three and a half feet water over the highest points in the rock bed of the river at Little Rock shoals, without taking into consideration the influence the dam will have in backing the waters that distance, or for the height the water will stand on the comb of the dam, both of which will probably be equal to 6 inches, and give a depth of water of four feet over the highest rocks.

The lock will be one hundred and seventy-five feet long, and thirty-eight feet wide in the chamber, and of the same dimensions as those used in the Kentucky rivers, which are now being improved; the lock is of sufficient ca-

capacity, with a rise of two and a half feet in the river, to pass boats of two hundred tons burden, the size which includes the most numerous class which navigate the Ohio, and, at all times, to pass boats drawing three and a half feet water; the gates will be opened with capstans; the lock walls will be two hundred and thirty-six feet in length, with piers of crib-work filled with stones, and faced with plank, extending one hundred and eighty feet in length above and below the lock, for protection walls.

The dam will be one thousand feet in length, built with cribs of timber filled with stone, and covered with six inch plank. The site is on the sand rock bed of the river, and affords a good foundation for the dam; the rock is more firm and compact than that which is found above water in the vicinity. Care has been taken in the selection of the site, to place the dam sufficiently up the falls for the agitation of water produced in passing the dam to subside on the rock bed of the river, to prevent deep washings below, the formation of new sand bars to impede the navigation, and to prevent the structure from being weakened and undermined. The dam is thus placed some distance up the falls, and, as a necessary consequence, the rock, to some extent, has to be excavated below the lock. This selection of the site lessens the height the dam has to be built about one and a half foot, and adds greatly to its permanency. This rise on the rock takes place above the point where the water will be discharged for hydraulic purposes, so that the fall secured by the erection of the dam is fully equal to twelve feet, nine feet of which, according to the usual allowance of mill wrights for head and fall races, will be available for machinery; with a supply of water greater than can be used for many years to come, sufficient at least to propel three hundred run of four and a half feet mill stones at seasons of the lowest stages of water, and will not be impeded by floods more than six weeks in a year.

The dam will have some slight influence in backing the waters of the river in medium floods, but this influence will be small; in higher staged floods, in which the water rises on the weir or comb of a dam to something like one-fifth part of its natural height, this influence of backing the waters is altogether lost, so that a dam has no effect in increasing the rise of freshets after they swell to a certain height; in such cases, an increase of velocity, at the place the dam is situated, is all the difference which can be perceived. The effect on smaller rises of a river must be very slight; for the waters in the pool of a dam of miles in extent, in small floods, move with a current that is scarcely perceptible, and the difference, consequently, of the elevation between the terminations of the pool must be small indeed.

The banks of the river are generally nineteen or twenty feet above its bed, and at the height of ordinary floods; but, with the exception of three places in the distance of eleven miles above the mouth of White river, in the highest rises of water the whole valley bordering the Wabash is overflowed for miles in extent. The valley is very level and uniform in its surface, of a tough clayey soil, which affords a tolerable guaranty against cutoffs, and the river from forming new channels.

From the lock and abutment on each side of the river guard banks can be cheaply constructed to high ground which never overflows; a fortunate circumstance in the location, which could not be found at any other place within many miles. Almost immediately above the site of the lock on the eastern bank of the river, a point of land, twenty feet above the



highest floods, projects into the stream, and forms a harbor where boats may land safely, without danger of being drawn over the dam.

This projection of high ground is not so abrupt as to make it difficult to pass, but, at the same time, it influences the current from the point to the bend of the river on the opposite side, and shields thereby the lock from drift and ice.

The bed of the Wabash for some distance, several miles above the Little Rock rapids, is deep and well adapted to become the reservoir of the sand, which must, in the nature of things, be deposited at the head of the pool. Few places on the Wabash could be found so well adapted for the location of similar works, in which safety, convenience, and permanence are so well secured. The lock walls are designed to be built of durable materials, and in the best manner, as well as the abutments and dam. The great amount of trade on the Wabash obviously points to the necessity of doing in the best manner whatever is done, so that the work, when put up, will need little or no repairs, or be of doubtful utility when completed. The plan is very similar to those used in Kentucky on their public works. Care will be taken to have the walls and gates of such dimensions that they will be able to resist the pressure against them, and in the height of the gates that they shall not exceed the limits in ordinary use for large locks, so that nothing shall be left to conjecture or the hazard of an experiment.

The difficulty of procuring stone of good quality, the quantity of materials to be collected at one point, the uncertainty of a proper stage of water for their transportation, and the necessity of having *all the materials* ready and prepared on the ground before a commencement of any part of the structures in the water can be made, induced the recommendation of letting out the delivery of the stone for the lock and abutment. This letting for the materials took place on the 22d instant, and contracts were taken by two responsible companies for the delivery of seven hundred cubic yards of stone by the 1st of June next, at fair prices for the States. The contractors have already entered with spirit upon the business of their contract, and with an activity which promises well for their performance. The prices at which these contracts have been taken would seem to insure the completion of the whole work within the estimates made for its cost.

Thus far, building stone of good quality has not been found nearer than Portersville, seventy-seven miles by water above the confluence of White river. There the quarries are fine for the massive work for which the materials are required; none of suitable quality have been found nearer to the site of the works, although diligent and laborious search has been made for that purpose.

The cost of the dam and lock is estimated at one hundred and sixty-six thousand nine hundred and twenty-eight dollars fifty-five cents. The whole is carefully estimated, and put at such prices, it is confidently believed, as will insure the completion of the work in the most substantial manner, without exceeding the estimates by a single dollar.

It is expected that, according to contract, the stone will be delivered by the first of June next, and that the main contracts for building the lock and the dam, and abutment, may be let by the 15th of that month, so that the work may be completed by the first of November, 1839.

Ample provisions have been made in the estimates for the use of the water power in the construction of culverts and canals for the conveyance and discharge of the water.

So great a power for hydraulic purposes created in the heart of an extensive wheat growing country, and adjacent to the beds of iron ore abounding in the valley of White river, cannot fail to insure to the States large profits. Its situation in a district of country where water privileges are extremely limited will enhance its value, and being so great, and within twelve hours' voyage of the Ohio, will give it such claims to the attention of the public as cannot, in the nature of things, fail to point it out as extremely well situated for any kind of manufacture in which water power is essential, and induce it to be extensively improved.

In regard to the profits to be derived from the construction of the work, it will be sufficient to remark that, when completed, it will probably stand on more favorable ground, in relation to the revenues to be derived from it, than any other in either of the States. So soon as it shall be completed, a very moderate rate of tolls collected on the great trade of the Wabash will render it profitable in the matter of revenue. But a very short time can elapse before the rents from the water power alone will pay the interest on the cost of construction, and keep up the necessary repairs and attendants. Leases for water power in Indiana rent for one hundred and fifty dollars per annum, for privilege for propelling one run of four and one-half feet mill stones, and are readily sought for at these prices.

The eligibility of this water power for the manufacture of iron and nails, of paper, cotton, lumber, and flour, cannot fail of making it, in a short time, the source of large revenue to the State. The benefits of these works to the country can hardly be appreciated. Great confidence is felt, that, to the present navigable portion of the year of the Wabash, it will add at least three months to that time, for the upper part of it, and that when the obstacles to the navigation of this section of the river shall be removed, there will be more inducement for the business of steamboats in the summer season, and that but a very short time in each year will be found, in which light draught-boats, suited to the commerce, will not make their regular trips from the upper country to its mouth. Nor will the benefits cease with the extension of the navigation of the river; and the rents and tolls which will be received, the introduction of property, the investment of capital to a great amount in manufactures, will swell the revenue of the States, add greatly to the aggregate of their wealth, and to the prosperity and convenience of their people.

The disbursements made in locating the work, examinations for stone, purchase of instruments, tools, &c. is one thousand four hundred and sixty-four dollars sixty-eight cents; the one-half of which, or the sum of seven hundred and thirty-two dollars thirty-four cents, was paid out of the money furnished by each commissioner of the respective States, as per account with vouchers rendered with the plans and estimates in detail.

Which are respectfully submitted.

D. BURR,

*Principal Engineer, Wabash river.*

MOUNT CARMEL, ILLINOIS, Nov. 28, 1837.

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*The honorable the Board of Public Works, State of Illinois:*

GENTLEMEN: The following is a brief statement of the progress of the surveys and examinations for the proposed improvements in the northern



districts of this State, committed to my charge by your honorable body, from the commencement up to the present time.

The first party was organized on the 8th day of May, 1837, and placed upon the line of the Central railroad, between the north line of McLean county and Rock river. The examination was commenced near the termination of the Illinois and Michigan canal, at Peru. The surveys were continued in a southerly direction, with J. W. Ingersoll at the head, until the arrival of P. H. Woodworth, to whom the charge was then committed, about the 1st of June, and Mr. Ingersoll placed in charge, with his party, of the surveys and examinations of the country for the proposed railroad between Peoria and Warsaw.

The third party was organized about the 3d of June, at Galena, with William B. Gilbert at the head, and placed in charge of the necessary surveys and examinations between that place and Rock river, to connect his lines with those to be examined by Mr. Woodworth, and terminating at the same point, by making Rock river a division between the two parties.

The fourth party was organized at Dixon's ferry, Rock river, about the 20th June, and Mr. A. Blanc placed in charge of the same, to make the necessary surveys and examinations of the said river for steamboat navigation, until the arrival of Mr. P. H. Oglebie, who was to continue the surveys; Mr. B. then to take the charge of the office, and make the necessary maps, profiles, &c. of said river and the Central railroad, between Galena and Rock river, as fast as the surveys were made, he (Mr. B.) being one of our best draughtsmen, on the arrival of Mr. O. who took the field. Soon after it was found that the exposure to the weather was such that his health at the time would not permit; it became necessary that he should return to the office, and Mr. B. to continue the surveys and examinations for the whole length of said river, about one hundred and fifty miles distant; all of which has been finished, with much care and credit to himself. Mr. C. L. Seymour has lately arrived, for the purpose of examining and assisting in making the estimates as fast as maps, profiles, &c. of said river are finished. He (Mr. C. L. Seymour) has also travelled in company with myself the whole length of the river from the north line of the State to its confluence with the Mississippi, and examined the most difficult point, and consulted together with reference to the best place of improving the same; and I have requested him to remain until the estimates are finished, as he has had practical information upon similar works heretofore, and it being impossible for me to attend to all of the necessary estimates at the same time, as the offices are now situated, one at Dixon's ferry, Rock river, one at Chicago, and the other at Canton, Fulton county.

The necessary preliminaries, surveys, and examinations, are now completed for all of the improvements before mentioned, together with the surveys of the proposed railroad from Meredosia, in the valley of the Illinois river, to Quincy, in the valley of the Mississippi. The latter has been done by Mr. Woodworth's party. Since finishing the work as above before assigned to him, J. W. Ingersoll's party was disbanded the latter part of September; Mr. Woodworth's and Mr. Gilbert's in October; and Mr. Blanc's in November, as you will see from the pay rolls, by retaining from two to three in each party until the field books, maps, profiles, and estimates are sufficiently arranged to dispense with their services for this season; all of which is now in progress, and will be finished as soon as the necessary work can be well done; after which a detailed report or docu-

ment will be presented by each assistant engineer upon the different works they have been engaged, together with my report upon the same. The head of each party, together with the draughtsman, received at the rate of \$1,500 per annum; junior assistants' salary at the same time the duties and labors were performed, have been that of senior assistants, which duties have been faithfully executed. Each party has consisted of from eight to ten in number, while in the field, and the price per day for leveller \$3 00, surveyor \$2 50, roadman \$2 00, chainman, axeman, teamster, cook, &c. from \$1 00 to \$1 25 per day. The number of miles instrumentally examined by the different parties have been about 1,000 miles to obtain 500, or thereabouts, for actual location, after a careful estimate of the different lines examined. The preliminary surveys have been made with much care, consequently the proposed lines may be located and put under contract early next season, or such proportion of each work as you may direct. At this time I cannot present you with a detailed report of the different lines until the estimates, maps, profiles, table of grades, curves, &c., are finished, as before alluded to. I can say, however, that there are no important obstacles in the way of either of the proposed improvements, and that the amount appropriated for each will be sufficient for their construction, or nearly so—some may overrun and others fall short. The country through which the railroads are to pass, is favorable for their construction, and can be finished for much less per mile than the average cost of the many other railroads in the United States. The improvement of the Rock river, for steamboat navigation, will be attended with very few difficulties compared with the advantages to be derived from the same; the cost of which will not exceed \$200,000, but will probably exceed \$100,000 a little. It will be necessary, however, to exceed 40 feet grade per mile in certain cases, for the railroad, which will not be very objectionable, considering the points and places where such grades will be necessary, together with the distance, which will be short, &c.; all of which will be clearly explained, in the report alluded to, hereafter.

For a more detailed account of the several proposed improvements, I beg leave to refer you to the following document from my assistants upon the various works they have been engaged.

All of which is respectfully submitted, by your humble servant,

JAS. SEYMOUR.

CHICAGO, *November 26, 1837.*

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CENTRAL RAILROAD OFFICE,  
*Dixon's Ferry, November 25, 1837.*

SIR: In compliance with the request contained in your letter of the 8th instant, I hereby transmit to you a brief report, estimate, and table of grades of a portion of the surveys committed to my charge.

This will give some idea of the nature and feasibility of the route, which may be of essential service to the honorable the board of commissioners of public works at their meeting in December. I do not pretend that all the various subjects connected with a "minute report" are here embodied, or that all the requisite information can be furnished at so early a date since the completion of the duties in the field. Sufficient, however, will be given, I hope, to satisfy yourself that the aggregate cost of the work will not ex-



ceed the amount contained in the following estimate, and that we have been entirely successful in finding a feasible route.

To those acquainted with that section of the country between Galena and Rock river, a more favorable result could not have been anticipated than that developed by a careful examination of the country, which proves so highly favorable to the construction of a railroad. After the rough maps and profiles were made of the several lines that have been surveyed, much exertion has been used to complete an estimate upon one line from Galena to Rock river. I regret, for reasons already mentioned, that I am unable to present the maps and profiles of this line. A detached report of the result, including maps, profiles, and estimates of the different lines surveyed, will be furnished as soon as practicable. It is probable that other lines may present more feasible results.

*From Galena to Savannah, 30 miles.*

In your letter of instructions, Galena was designated as the point at which the survey was to be commenced. The line commences on the northeast side of Fever river, and follows its general course to its junction with the Mississippi. The ground, most of the way, a distance of six miles, is much broken by narrow ravines and ridges. At Low's point, two miles below Galena, the river makes a sharp turn to the southwest, and the hills adjacent are high and steep; in several places large ledges of rocks project. To pass this point, it is necessary to make a curve of 640 feet radius, to avoid expensive rock excavation. From Low's point the line continues on favorable ground about five and a half miles, excepting one point where the river curves short to the northeast, and then as short to the southwest. At this point a curve of 520 feet radius is made to avoid a deep side-hill excavation.

Below the mouth of Fever river, the line follows the valley of the Mississippi to Savannah, a point to which, by your letter of instructions, the survey was directed. A short distance below the mouth of Fever river the banks of the Mississippi are high, and, in some places, very steep, the line occupying the sloping bank about 28 feet above the river until it reaches the Sand prairie, two miles below. In tracing the line through Sand prairie, we pass over a uniform surface 12 miles.

At the lower end of this prairie the line crosses Apple river three-fourths of a mile below Mr. Watson's house. The river at this place is 172 feet wide; the banks on each side are good, and afford a safe crossing, without any danger from the high freshets to which the river is subject. The line then ascends into a broad table land, about 50 feet above the river, and continues quite uniform until broken by the valley of Rush creek, five miles below. Crossing Rush creek near Mr. Robinson's dwelling, the line passes over favorable ground to a point two miles above Savannah; thence follows a steep sidehill to Savannah. The sidehill is mostly composed of rock, lying in thin strata, much broken by vertical and horizontal seams, which renders them easy to remove.

Quarries have been opened along the sidehill at different places, which show very plainly the nature of the rock.

*From Savannah to Rock river, 36 miles, 17 chains.*

Leaving Savannah, the line descends gradually to Plum river bottom, crossing the river half a mile above the ferry. At this place the river is 234 feet wide. The line then follows the valley of the Mississippi to the head of Cat Tail swamp, a distance of 15 miles. From the head of Cat Tail swamp, the line deflects to the northeast, from a tangent 12 miles, leaving the valley of the Mississippi, and continues to Rock river, at a point about 17 miles below Dixon's ferry.

The nature of the ground over which this line is traced, is uncommonly favorable, the grading very light, and the earth easy of excavation.

*Elevation.*

The highest level attained on the line between Galena and Rock river, is only 82 feet. The surface of Fever river being adopted as our base line.

*Curves.*

There will be no curve less than 1,200 feet radius, excepting the two before mentioned.

*Estimate.*

The following estimate is based upon work of durable character. On every part of the line where the material is required, valuable stone for building bridges, culverts, &c., can be obtained at very little expense. In many places where the line crosses deep ravines, a considerable deduction can be made from the estimate cost, by substituting bridges of wooden structure in place of earthen embankments.

I am, sir, with much respect,

Your obedient humble servant,

W. B. GILBERT,

*Civil Engineer.*

JAMES SEYMOUR, Esq.,

*Chief Engineer of the Central railroad, Northern District.*



TABLE of grades from Galena to Rock river.

No. of grades.	Length of grades.	Inclination per mile.	Ascending or descending.	Elevation above Fever river.	Remarks.
	<i>Ms. ch's.</i>				
1	0.30	—	Level -	25.00	
2	0.45	25.00	Ascending -	39.06	
3	0.57	13.00	Descending	29.80	
4	0.21	—	Level -	29.80	At Low's point.
5	1.16	4.33	Ascending -	35.00	
6	3.21	2.15	Descending	28.00	
7	3.75	—	Level -	28.00	Head of Sand prairie.
8	1.28	22.96	Ascending -	59.00	
9	0.72	26.67	Descending	35.00	
10	1.10	10.22	Descending	23.50	
11	4.25	8.00	Ascending -	58.00	
12	1.10	27.56	Descending	27.00	
13	1.25	10.67	Ascending -	41.00	
14	0.60	21.33	Descending	25.00	
15	0.06	—	Level -	25.00	Cross Apple river.
16	1.01	28.64	Ascending -	54.00	
17	0.78	7.47	Ascending -	61.28	
18	2.02	12.48	Descending	36.00	
19	0.48	26.67	Descending	20.00	Cross Rush creek.
20	2.20	4.44	Ascending -	30.00	
21	1.70	5.33	Descending	20.00	Savannah.
22	1.22	10.59	Descending	6.50	
23	1.58	—	Level -	6.50	Cross Plum river.
24	1.40	17.44	Ascending -	32.56	
25	6.60	2.24	Descending	17.49	
26	1.40	5.00	Ascending -	25.00	
27	3.00	7.00	Descending	4.00	
28	1.10	3.55	Descending		
29	1.46	6.35	Ascending -	10.00	
30	1.34	17.40	Ascending -	34.79	
31	1.70	—	Level -	34.79	
32	1.52	25.58	Ascending -	77.00	
33	0.78	4.10	Descending	73.00	
34	0.84	20.95	Descending	51.00	
35	0.66	4.52	Descending	47.27	
36	0.72	21.31	Descending	29.34	
37	0.30	11.73	Descending	24.94	
38	2.15	5.98	Ascending -	42.00	
39	0.72	7.02	Descending	35.62	
40	2.08	1.78	Descending	32.00	
41	3.12	—	Level -	32.00	Rock river.

SIR : I have the honor of informing you that the examinations and surveys intrusted to my charge, as your assistant, have been completed, viz : of that part of the Central railroad between the northern boundary of McLean county and Rock river, and of the Quincy and Meredosia division of the Northern Cross railroad. Our surveys, agreeable to your instructions, were commenced on the south bank of the Illinois river, and as the chief difficulties seemed to be in gaining the summit of the bluff, three different routes or lines were surveyed from the river intersecting on the prairie, and thence but one line to McLean county.

The first of these lines ran up the Big Vermillion river. It was found to be rather a circuitous route ; generally an easy, but on account of rocky points, deep ravines, &c., expensive grade. The second line is direct, and surveyed with a view to stationary power ; a good line, and as pretty a grade as could be wished. Our third line is up the Cedar creek, very direct, gaining the summit of the bluff in about four and a half miles ; and, with the exception of two other deep cuts through rocky ridges for a short distance, may be considered a good line. The grade on the whole, I think, is easy and not expensive. After gaining the prairie, there is nothing to prevent a tangent, with light grading, at least as far as to McLean county. After completing our surveys on the south side of the river, we commenced examinations on the north. Here we found more difficulty in gaining the high prairie ; four routes were examined and carefully surveyed. On the first two, we gained the prairie in about one and a half mile, by running up ravines, but were compelled to a grade of at least 100 feet per mile, on a line with curves. I think, however, that by excavating and embanking moderately, a direct or straight line may be obtained on one of these routes. Our third line runs up the Little Vermillion ; a crooked line, with one, at least, very abrupt and unavoidable curve ; gaining the prairie in about ten miles, and at a point at least four miles from the direct line.

On Rock river, agreeable to your directions, we surveyed four lines from the river. Across the country from Rock to Illinois river, we have surveyed two entire lines, one of which has but one curve, and the other we tried to suit to the surface of the country. In this survey, more than two hundred miles of instrumental observations have been made with the greatest care, and with a view to obtain the best feasible line for the road. On the whole, I am happy to say, that I think the route is much more favorable than has been anticipated.

The Quincy and Meredosia survey was conducted under the immediate direction of Mr. Wm. Seymour. The directions given me by yourself respecting this survey have been strictly observed. Every line has been thoroughly examined, and judging from an examination of the field books, I should think the route even more favorable than you anticipated. The grades will be generally easy, and not expensive. About ninety miles of instrumental observations were made to obtain a line for location of less than sixty. My surveys were all completed by the 27th of October, when the party was disbanded ; and I am happy to bear testimony to the zeal, industry, and fidelity of each member of the party, in the discharge of his respective duties while in the field. Their promptness and activity in following my directions, and unity of action, has enabled us to accomplish so much this season.

We have commenced operations in our office in Chicago, and shall make our maps, profiles, plans, estimates, &c., with as much despatch as possible.



We have much work before us, and but little help to do it. However, I think we can have everything done in the best possible manner before the spring opens.

I have engaged the services of an assistant draughtsman, whose compensation is to be left to yourself or the decision of the board of public works. I consider his services absolutely necessary, considering the extent of our surveys, and the fact that my surveyor was entirely unacquainted with draughting, not even being able to plat his own field book. My leveller and surveyor are, and will be, profitably employed in the office; and considering we have the work of two surveys (viz: Central railroad and Quincy and Meredosia) to do in our office, I would suggest the propriety of retaining, as assistants in the office, the two young men who acted as rodmen on the former survey, and alternately as levellers on the latter. They will soon learn to render much assistance in platting profiles, estimating, &c., and may save the expense of another draughtsman.

As soon as our office work has sufficiently progressed, I shall have the honor of making to you a more formal and detailed report.

In the mean time,

I remain your most obedient servant,

H. P. WOODWORTH,

*Assistant Engineer.*

To JAMES SEYMOUR, Esq.,

*Chief Engineer Northern Engineering District, State of Illinois.*

CANTON, ILLINOIS, *November 27, 1837.*

SIR: Having been appointed to conduct the survey of the Peoria and Warsaw railroad, and having completed that duty, I beg leave to present the following report:

By the internal improvement act of the late session of the Legislature, this road is to extend from the town of Peoria, on the Illinois river, to Warsaw, on the Mississippi, about four miles below the lower rapids, passing through the towns of Canton, in Fulton county, Macomb, the seat of justice for McDonough county, and Carthage, the county seat of Hancock county.

It has been deemed proper to divide the road into four divisions: the first, extending from Peoria to Canton, the second, from Canton to Macomb, the third, from Macomb to Carthage, and the fourth, from Carthage to Warsaw.

#### *1st Division.*

The country, in a direct line between Peoria and Canton, is not favorable to the location of a railroad, on account of the numerous valleys and ravines caused by the head branches of the Big and Little Lamarsh, Copperas, and several smaller creeks. It is, therefore, necessary to deviate from a direct line, either to the south, by following down the bottoms of the Illinois river about twenty miles, then ascending the bluff on a grade of forty feet per mile, cross the valley of Copperas creek, thence north to Can-

ton ; or to the north, ascending the bluff at Peoria, and, after crossing the valley of Kickapoo creek, gain the high prairie ridge north of the head waters of the above named creeks. Both these routes being feasible, it was necessary, in order to form a correct opinion of their relative advantages, to survey each of them; this was accordingly done, and the estimate of the two lines are herewith presented, and a description of the country, with the obstacles to be encountered on each route.

### *Bottom route.*

The formation of the bluffs along the Illinois river are of such a nature, that the numerous small streams which flow into it, from the high prairies, cut into bluffs, deep and often wide ravines, and the earth, thus washed from them, is deposited in the bottoms in ridges, and on the top of these ridges are found the small creeks or branches which will necessarily increase the expense of crossing them. As the line ascends the bluff, it is obliged to cross ravines caused by these small branches, the embankments consequently increasing in depth as the line ascends the bluff. After ascending the bluff about two miles and gaining near the top of it, the valley of Copperas creek presents itself as the most serious obstacle on this route. The whole length of embankment across this valley is three thousand two hundred feet, (sixty-six hundredths of a mile,) and the height of the grade line above the bottom ninety feet. The width of the bottom is short, (four hundred feet,) there being a strip of bench or table land about twelve hundred feet in width. The average height of the grade line above this table is sixty-five feet. The cost of crossing this valley, of course, depends on the plan adopted.

I have estimated the expense required to build a solid earth embankment. On the west side of Copperas creek valley the ground is nearly level, and covered with a stunted growth of oaks, commonly denominated barrens. Through this timber the line continues about two miles, then enters a prairie, and follows the same to Canton ; distance, by way of bottom route, thirty miles.

### *Prairie route.*

The bluffs at Peoria are of a different formation from those generally bordering on the Illinois river, there being a strip of table land from one to two miles in width, and eighty feet above the river. To gain this table land (according to the line at present established) will require a grade of forty seven and five-tenths feet per mile. From this table the line ascends the second bluff to the high prairie, and continues on the same about one and three-fourths of a mile, where it reaches the valley of Kickapoo creek. The valley of this creek, at the point of crossing, is one thousand feet from bluff to bluff; and the bottoms are one hundred and sixty feet below the grade line. The plan proposed for crossing this creek is by a bridge, after the form of Col. Long's, supported by timber piers from the bottom: these are to be covered to half their height with earth brought on the road and dropped around their base. This will preserve the timber from decay below the earth, and serve as a foundation when a re-construction shall be required. This plan is proposed for crossing similar valleys by the chief engineer of the Niagara and Detroit river railroad, and the bridges are in



use on some of the principal railroads in the country. After crossing this valley, the line follows a summit ridge between some small branches of the Kickapoo about two miles, and enters the prairie near Henry Jones's. From this point the line continues to Canton on a prairie ridge, forming a summit between the head-waters of Big and Little Lamarsh and Copperas creek on the south, the branches of Kickapoo and Big creek on the north. Distance, by the prairie route, thirty-two and two-tenths miles.

*Estimate for grading Prairie route.*

328,198	cubic yards of excavation, at 14 c.	-	-	\$45,949	72
437,114	" " embankment, at 15 c.	-	-	65,567	10
1	culvert for a branch of Copperas creek	-	-	500	00
19	small culverts, at \$120	-	-	2,280	00
	Clearing and grubbing	-	-	1,500	00
	Bridge over Kickapoo creek valley	-	-	20,000	00
Total estimate				\$135,794	82

*Estimate for grading Bottom route.*

(Peoria and Copperas creek section, 22 miles.)

179,600	cubic yards excavation, at 14 c.	-	-	\$25,144	00
183,076	" " embankment, at 15c.	-	-	27,461	40
	Bridges over Kickapoo, Big and Little Lamarsh	-	-	4,700	00
38	small culverts, at \$130	-	-	4,940	00
	Clearing and grubbing	-	-	13,976	00
Total estimate				\$76,221	40

*Copperas creek section, two miles.*

287,438	cubic yards excavation, at 14 c.	-	-	\$40,241	32
802,409	" " embankment, at 15 c.	-	-	120,361	35
	Viaduct	-	-	3,000	00
2	culverts, at \$130	-	-	260	00
	Clearing and grubbing	-	-	1,400	00
Total estimate				\$165,262	67

*Copperas creek section to Canton, six miles.*

20,159	cubic yards excavation, at 14 cents	-	-	\$2,822	26
57,975	cubic yards embankment, at 15 cents	-	-	8,696	25
8	small culverts, at \$130	-	-	1,040	00
	Clearing and grubbing	-	-	600	00
Total cost of bottom route				\$254,642	58
Total cost of prairie route				135,794	82
Favor of prairie route				\$118,847	76

*Second division, Canton to Macomb, 36 7-10 miles.*

The only points on this division where extra expense will be required, are the valleys of Spoon river and Big creek ; the latter is about one mile west of Canton, and presents the same general characteristics of all the streams throughout this country, viz: deep valleys, (or what may be more properly denominated ravines,) abrupt and broken bluffs, and uneven ground on either side, caused by their small tributaries. The only point near the direct line where it is possible to reach the main valley of Big creek, without crossing several of these small branches, is south of the town of Canton. It was therefore necessary to run the line south through the town, before attempting to run westerly in the general direction of the road. To cross this valley, will require an embankment thirty feet high, and about four hundred feet in length, with an ascending and descending grade of thirty-seven and thirty-six hundredths feet per mile.

After crossing the valley of Big creek, and passing through the adjoining timber, the line enters upon Totten's prairie, remarkable for its regularity and smoothness of surface. This prairie is narrow, forming a summit between the branches of Big creek and Spoon river on the south, and Putnam's creek on the north. The line continues down this prairie, (passing through the town of Centreville,) about twelve and a half miles, then enters the valley of Boughman's branch, and continues down the same to Spoon river.

By reference to the table of grades, it will be seen that I have adopted grades of 60 7-10ths feet per mile, for two and a half miles, and 44 9-10ths feet per mile for 4,400 feet.

By a resolution of the board of commissioners of public works, the grades on all the railroads in the State are limited to maximum of forty feet per mile. In compliance with that requisition, I have estimated the expense of constructing the road down this valley on that grade. It may be proper here to remark, that if this latter grade is adopted, it will require the excavation to be made below the surface of water in the branches near its source. It will therefore be necessary to excavate the road bed wider than usual, in order to admit drains of sufficient width to carry off the water which would naturally flow into it. It may also be advisable to construct drains on each side of the excavation, on the natural surface, to prevent injury to the slopes from washing.

After descending the valley of Boughman's branch, the line enters the valley of, and crosses Spoon river, about one quarter of a mile above Colonel Ball's mill. After crossing the bottoms, it is necessary to follow down the west bluff, about one and three-fourths mile, then cutting through a spur of the same between the river and Harris's branch the line enters the valley of the latter. This branch presents the same general features as the one on the opposite side of the river, but being longer, it will admit of grade thirty-nine and seven-tenths feet per mile, until near its source, when the same necessity occurs for adopting a steeper grade as at the head of Boughman's branch ; it does not, however, require one so steep, being fifty-two and five tenths feet per mile for one and three-fourths mile. If a grade of forty feet per mile is adopted, the same extra expense will be required as at the head of the branch on the opposite side of the river.

From the head of Harris's branch to Macomb, (twelve miles,) the line is straight, passing over a large prairie, slightly undulating ; and by adopting the grade to the surface, little expense will be required for grading.



*Estimate for grading second division, thirty-six and seven-tenths miles ;  
Canton to the head of Boughman's branch, fourteen miles.*

85,253 cubic yards of excavation, at 14 cents	-	-	\$11,935 42
100,423 cubic yards of embankment, at 15 cents	-	-	15,063 45
4 culverts, at \$120	-	-	480 00
Clearing and grubbing	-	-	600 00
Total estimate	-	-	<u>\$28,078 00</u>

*From the head of Boughman's to the head of Harris's branch, ten and three-fourths miles.*

47,317 cubic yards of excavation, at 14 cents	-	-	\$6,624 38
54,063 cubic yards of excavation, at 15 cents	-	-	8,109 45
98,424 cubic yards of embankment, at 15 cents	-	-	14,763 60
55,210 cubic yards of embankment, at 16 cents	-	-	8,833 60
2,550 cubic yards rock excavation, \$1 50	-	-	3,825 00
9 culverts, at \$120	-	-	1,080 00
1 culvert	-	-	200 00
450 cubic yards slope wall, at \$1	-	-	450 00
Clearing and grubbing	-	-	3,800 00
Total estimate	-	-	<u>\$47,686 03</u>

*From head of Harris's branch to Macomb, eleven and one-fifth miles.*

16,041 cubic yards of excavation, at 14 cents	-	-	\$2,245 74
33,948 cubic yards of embankment, at 15 cents	-	-	5,092 20
3 culverts, at \$120	-	-	360 00
Bridges over Spoon river and Big creek	-	-	5,000 00
Total cost of grading 2d division	-	-	<u>\$88,462 84</u>

*Estimate for grading down the valley of Boughman's branch on grades  
of sixty and seven-tenths and forty-four and nine-tenths feet per mile,  
three and six-tenths miles.*

On sixty seven-tenths and forty-four nine-tenths feet per mile	\$12,576 44
On forty feet per mile	80,005 07
Favor of steeper grades	<u>\$67,428 63</u>

*Third division, Macomb to Carthage, twenty-eight miles.*

This division embraces a portion of the country drained by the waters of Crooked creek, and to cross its valley is the only point of difficulty.

On a direct line between Macomb and Carthage, this creek is divided into two principal forks, called "the East and West forks," which form a junction about twelve miles west, and three and a half south of Macomb. The route to which the line is confined for twelve miles west of this place, is a narrow, flat prairie, directly parallel with the East fork, and forming a summit between that and Troublesome creek. The line continues on this prairie, parallel with the East fork, till after its junction with the West, then descends to the valley of the main creek, through the valley of McDonough's branch. At the head of this branch, and in the points of the bluff, through which it is necessary to cut, sandstone rock is found near the surface. This is the only point on the road where there is any amount of rock excavation. After crossing Crooked creek, and passing over a prairie bottom from one-half to two feet below high water mark, the line enters the valley of Asher's branch, and continues up the same to its head. This valley is favorable to the location of a railroad, requiring but few curves, and those of large radii, and grades of twenty-six and four-tenths and twenty-nine feet per mile. From the head of Asher's branch to Carthage, it is necessary to cross the valleys of three small branches of Crooked creek, running in a northerly direction, requiring short and deep embankments, and one of them an ascending and descending grade of thirty-eight and five-tenths, and thirty-five and eleven hundredths feet per mile; otherwise the line passes over an even prairie, and enters Carthage on the south side. I also examined a route following near a direct line between the extremes of this division, and crossing both forks of Crooked creek. The objections to this route are the difficulty of crossing both forks, each of which presents the same obstacles as the valley of the main creek, although the distance would be from two to three miles less.

*Estimate of grading third division, twenty-eight miles.*

105,066 cubic yards of excavation, at 14 cents	-	-	\$14,709	24
32,181 cubic yards of excavation, at 15 cents	:	-	4,827	15
14,546 cubic yards rock excavation, at \$1 50	-	-	21,819	00
177,556 cubic yards of embankment, at 15 cents	-	-	26,633	40
119,429 cubic yards of embankment, at 16 cents	-	-	19,108	64
10 culverts, at \$120	-	-	1,200	00
2 culverts	-	-	2,000	00
1 bridge over Crooked creek	-	-	2,000	00
Clearing and grubbing	-	-	2,050	00
Total estimate	-	-	\$94,347	43

*Fourth division, Carthage to Warsaw, nineteen miles.*

Between Carthage and the timber adjoining the Mississippi, is a prairie of large extent, drained by the head branches of Crooked, Beaver, and Warsaw creeks. To avoid their valleys, it is necessary to deviate from a direct line a short distance to the north and south. Approaching the Mississippi, the same peculiarity is presented as near the Illinois river, viz: the ground ascending towards the river forming a ridge parallel with it from



sixty to eighty feet above the general surface of the country. To gain the summit of this ridge, an ascending grade of thirty eight feet per mile is required. The line then descends along this ridge to the bluff, in the rear of Warsaw. At this point, in order to gain the whole descent in one tangent, and on favorable ground, is required a curve of five hundred feet radius, which is the only one under twelve thousand feet on the whole road. The grade adopted down this bluff to the river is one hundred and eighty-four feet per mile. On this grade passengers and light merchandise can be transported with a single locomotive, but the heavier articles of transportation will require extra horse-power, or an assistant locomotive.

The country near the Mississippi is exceedingly broken and irregular in its formation, and much care and examination will be required before the best possible location can be made.

*Estimate of grading fourth division, nineteen miles.*

225,631 cubic yards of excavation, at 14 cents	-	-	\$31,588	34
200,888 cubic yards of embankment, at 15 cents	-	-	30,133	20
22,376 cubic yards of embankment, at 16 cents	-	-	3,580	00
8 culverts, at \$120	-	-	-	960
3 culverts, at \$200	-	-	-	600
Clearing and grubbing	-	-	-	1,000
Total estimate	-	-	-	\$67,861 54

*Summary.*

1st division—prairie route	-	-	-	\$135,794	82
2d division	-	-	-	88,462	84
3d division	-	-	-	94,347	43
4th division	-	-	-	67,861	54

\$386,466 63

\$3,331 61 per mile for grading.

The following is a table of the grades adopted from Peoria to Warsaw:

TABLE of grades.

Number of grade.	Location.	Distance to the west end of each grade.	Length of each grade.	Inclination of grade.		Total elevation of feet.			
				Direction.	Per mile.	For each grade.		Above Peoria lake.	
						Rise.	Fall.		
		Miles.	Miles.		Feet.	Feet.	Feet.	Feet.	
1	Peoria	-	-	-	-	-	-	-	41.00
2	-	0.95	0.95	Ascending	47.50	45.00	-	-	86.00
3	-	2.80	1.85	Ascending	38.28	76.00	-	-	157.00
4	-	3.41	0.61	Level	-	-	-	-	157.00
5	Cross Kickapoo creek	5.30	1.89	Ascending	55.44	105.00	-	-	262.00
6	-	6.30	0.99	Ascending	12.40	12.20	-	-	274.20
7	-	7.20	0.90	Descending	11.22	-	10.30	-	264.00
8	Prairie	10.04	2.84	Ascending	9.77	27.75	-	-	291.75
9	Prairie	10.99	0.95	Descending	9.24	-	8.75	-	283.00
10	Prairie	12.40	1.41	Ascending	10.56	15.00	-	-	298.00
11	Prairie	16.10	3.70	Level	-	-	-	-	298.00
12	Prairie	17.99	1.89	Ascending	10.56	20.00	-	-	318.00
13	Prairie	19.32	1.33	Ascending	4.49	5.95	-	-	323.95
14	Prairie	20.45	1.13	Ascending	14.00	15.90	-	-	309.85
15	-	24.62	1.17	Descending	2.64	-	11.00	-	328.83
16	Cross branch of Copperas	27.08	2.46	Descending	13.20	-	32.50	-	296.35
17	-	31.06	3.98	Descending	182.16	-	72.45	-	223.90
18	Canton	32.01	0.95	Level	-	-	-	-	223.90
19	-	32.99	0.98	Descending	30.36	-	29.90	-	194.00
20	Big creek	34.28	1.29	Ascending	36.96	47.60	-	-	241.60
21	-	35.83	1.55	Ascending	6.60	10.25	-	-	251.85
22	Totton's prairie	36.93	1.10	Descending	7.92	-	8.70	-	243.15
23	Totton's prairie	38.64	1.71	Descending	3.17	-	5.40	-	237.75
24	Totton's prairie	39.50	0.86	Ascending	4.75	4.14	-	-	241.89
25	Totton's prairie	40.08	0.58	Ascending	5.28	3.00	-	-	244.89
26	Totton's prairie	40.91	0.83	Descending	5.81	-	4.84	-	240.05
27	Centreville	41.86	0.95	Ascending	7.09	7.00	-	-	247.05
28	-	46.21	4.35	Descending	5.02	-	21.86	-	225.19
29	-	47.08	0.87	Descending	3.70	-	3.19	-	222.00
30	Valley of Boughman's branch	49.20	2.12	Descending	60.70	-	128.80	-	93.20
31	Valley of Boughman's branch	50.04	0.84	Descending	44.90	-	37.20	-	56.00
32	Cross Spoon river	51.60	1.59	Level	-	-	-	-	56.00
33	Along Spoon river bluff	52.08	0.45	Ascending	9.24	4.20	-	-	60.20
34	-	52.42	0.34	Ascending	39.60	12.19	-	-	72.39
35	-	53.14	0.70	Descending	16.37	-	11.78	-	61.92
36	Valley of Harris's branch	53.98	0.84	Ascending	29.06	24.20	-	-	86.12
37	Valley of Harris's branch	55.49	1.51	Ascending	39.60	59.88	-	-	146.00
38	Fulton county	57.16	1.67	Ascending	52.80	88.00	-	-	234.00
39	McDonough county	57.95	0.79	Ascending	10.62	8.00	-	-	242.00
40	McDonough county	58.52	0.57	Level	-	-	-	-	242.00
41	Prairie	59.28	0.70	Ascending	13.20	10.00	-	-	252.00
42	Prairie	60.15	0.87	Descending	15.80	-	13.80	-	238.20
43	Prairie	60.61	0.46	Ascending	3.96	1.80	-	-	240.00
44	Prairie	61.18	0.56	Descending	14.94	-	8.50	-	231.50
45	Prairie	61.83	0.75	Ascending	2.00	1.50	-	-	233.00
46	Prairie	62.69	0.76	Descending	9.20	-	7.00	-	226.00
47	Prairie	63.45	0.76	Ascending	15.84	12.00	-	-	238.00
48	Prairie	64.20	0.75	Ascending	9.24	7.00	-	-	245.00
49	Prairie	65.53	1.33	Level	-	-	-	-	245.00
50	Prairie	67.80	2.27	Ascending	6.34	14.40	-	-	259.40
51	Macomb	68.75	0.95	Level	-	-	-	-	259.40
52	-	69.51	0.76	Ascending	7.59	5.60	-	-	265.00



TABLE—Continued.

Number of grade.	Location.	Distance to the west end of each grade.	Length of each grade.	Inclination of grade.		Total elevation in feet.			
				Direction.	Per mile.	For each grade.		Above Peoria lake.	
						Rise.	Fall.		
		Miles.	Miles.		Feet.	Feet.	Feet.	Feet.	
52	Prairie	70.08	0.57	Descending	7.39	-	4.20	260.80	
53	-	71.20	1.13	Level	-	-	-	260.80	
54	-	72.16	0.95	Descending	7.39	-	7.00	253.80	
55	-	73.48	1.32	Level	-	-	-	253.80	
56	-	74.24	0.76	Descending	7.65	-	5.80	248.00	
57	-	75.00	0.76	Ascending	5.28	4.00	-	252.00	
58	-	75.67	0.67	Level	-	-	-	252.00	
59	-	76.33	0.66	Ascending	10.56	8.00	-	260.00	
60	-	77.73	1.40	Descending	7.92	-	11.10	243.90	
61	-	79.55	1.82	Level	-	-	-	248.90	
62	-	80.69	1.14	Descending	21.58	-	24.30	224.00	
63	-	81.25	0.56	Descending	12.61	-	6.60	218.00	
64	Valley of McDonough's branch	83.52	2.27	Descending	58.00	-	132.00	86.00	
65	Cross Crooked creek	85.61	2.69	Level	-	-	-	86.00	
66	Valley of Asher's branch	87.31	1.70	Ascending	26.40	45.00	-	131.00	
67	Valley of Asher's branch	88.45	1.14	Ascending	29.00	33.00	-	164.00	
68	-	88.94	0.49	Descending	10.56	-	5.20	158.80	
69	Cross Wilson's branch	89.96	1.02	Ascending	29.00	29.70	-	188.50	
70	-	90.53	0.57	Ascending	21.12	12.00	-	200.50	
71	Cross Owen's branch	91.59	1.06	Descending	35.11	-	37.34	163.16	
72	-	92.87	1.28	Ascending	38.50	49.64	-	212.80	
73	-	93.94	1.07	Ascending	4.22	4.48	-	217.28	
74	Cross Carthage branch	94.55	0.61	Descending	27.98	-	17.08	200.20	
75	Prairie	95.34	0.79	Ascending	15.05	11.97	-	212.17	
76	Prairie	96.02	0.68	Level	-	-	-	212.17	
77	Prairie	96.97	0.95	Ascending	26.40	25.00	-	237.17	
78	Pass Carthage	98.86	1.89	Ascending	14.73	26.00	-	263.17	
79	Prairie	100.19	0.33	Descending	3.96	-	5.25	257.92	
80	Prairie	100.37	0.18	Level	-	-	-	257.92	
81	Cross small branch of Bear creek	101.33	0.96	Descending	23.23	-	22.00	235.92	
82	-	102.65	1.32	Descending	3.70	-	4.92	231.00	
83	-	103.24	0.57	Descending	11.35	-	7.00	224.00	
84	-	109.85	6.61	Level	-	-	-	224.00	
85	-	111.97	2.12	Ascending	38.28	81.20	-	305.20	
86	Summit of ridge	112.31	0.34	Level	-	-	-	305.20	
87	Along ridge	113.82	1.52	Descending	39.60	-	60.00	245.20	
88	Along ridge	114.77	0.95	Descending	31.68	-	30.00	215.20	
89	Along ridge	115.18	0.41	Descending	34.84	-	14.50	200.70	
90	Along ridge	115.23	0.05	Level	-	-	-	200.70	
91	Warsaw	115.97	0.74	Descending	184.80	-	136.50	64.20	
92	Mississippi river	116.00	0.03	Level	-	-	-	64.20	

The foregoing estimates are liberal, and cannot fail to build the road. If frame work is adopted in place of heavy embankments, the first cost may be much reduced.

The whole length of the road (by way of the prairie route, first division) is one hundred and sixteen miles, passing through a country celebrated for the fertility of its soil and the salubrity of its climate, rapidly settling with an industrious and enterprising population, and who have evinced, through-

out the whole length of the road, a commendable interest in its progress. Liberal donations of land for depots have been offered in some of the towns upon the line. Although the grades are undulating, to suit the surface of the country, they will not suffer in comparison with any road of equal extent in the country.

The following table will give the gross load with which an engine of eight tons weight can ascend grades varying from a level to one hundred and fifty feet per mile :

Ascension per mile.	Tons.	Ascension per mile.	Tons.
Level.	160.00	50	50.05
5	134.39	60	43.33
10	113.79	70	38.07
15	101.12	80	33.68
17	96.03	90	30.10
20	87.58	100	27.10
30	70.63	150	17.14
40	58.80		

By applying the grades, in the foregoing table of grades, to the above, the gross load of one engine is ascertained,

#### *Curvatures.*

With the exception of the curve at Warsaw, there will be required no curves under one thousand two hundred feet radii. The majority of them are from two to twelve hundred feet, and on a final location they may be much improved.

All which is respectfully submitted, by

Your obedient, humble servant, &c.,

JOHN W. INGERSOLL.

To JAMES SEYMOUR, Esq.

STATE OF ILLINOIS, }  
Fayette county. }

Personally came J. W. Ingersoll before me, the undersigned, an acting justice of the peace within and for said county, and made oath that the facts and statements in his report, as engineer, signed by him, are true, according to the best of his knowledge and belief.

[L. s.] Witness my hand and seal, this 9th of December, 1837.

ALLEN McPHAIL, J. P.

ENGINEERS' OFFICE, WESTERN DISTRICT,  
Jacksonville, October 29, 1837.

GENTLEMEN: In conformity with the instructions of the acting commissioner of the first judicial district, and the plan of operations previously adopted with reference to the speedy prosecution of all the surveys in this district, the necessary arrangements were made as soon as practicable after the final location of the first division of the Northern Cross railroad, to



commence the survey and location of a route for the Pekin and Bloomington railroad, and the continuation of the Northern Cross railroad beyond Springfield. The requisite instructions were issued, two brigades of engineers organized, and the survey of the former road assigned to Mr. Wm. Pollock, and the latter to Mr. Frederick Hawn. Subsequently instructions were received from the acting commissioner of the first judicial district, requiring the immediate preparation for contract of that part of the Pekin and Bloomington railroad between Pekin and Tremont, and of that part of the third division of the Northern Cross railroad between Springfield and the northern bank of the Sangamon river. Accordingly the definitive location of both portions of the respective roads have been completed, as soon as possible, by the gentlemen to whose charge they were confided, and their reports and estimates are herewith transmitted.

The country between Pekin and Tremont, as was anticipated, presents great obstacles to the economical construction of that part of the road. We have, however, been fortunate in being able to adopt a very direct route; the value of which location is enhanced by the long and steep grades which have been found unavoidable, and which would have been more objectionable in curvatures. The cost of graduating the northern route, through Park street, in Tremont, which is undoubtedly the cheapest and most direct, amounts to \$100,294, which, added to the probable cost of the superstructure for nine and fifty-nine hundredths miles, at \$6,110 per mile, makes the total cost \$174,778, or \$18,225 per mile, including an allowance of 10 per cent. for superintendence and contingent expenses. As the bad health of Mr. Pollock and his party, and the unfavorable state of the weather, has rendered it impossible to extend the examinations to Bloomington, within the time fixed for letting the 1st division of the road, I am unable to state how much the average cost of the whole road may be reduced by the evidently more favorable character of the residue of the route.

The examinations of the route of the Northern Cross railroad has been extended east of Springfield to Decatur, and the country sufficiently examined to ascertain the practicability of obtaining a very cheap and favorable route, though the location is by no means fixed, except for the first seven miles east of Springfield, which has been definitively located, and is now ready for contract, agreeably to the instructions of the acting commissioner.

The route selected for this part of the 3d division is unusually favorable, notwithstanding the unavoidably great expense of crossing the Sangamon river. The length of the bridge across the river I have estimated at 300 feet, or two spans of 150 feet each; to decide whether this is sufficient to pass its waters or not, it will be necessary to examine the stream when high, an opportunity for which will probably occur the ensuing winter or spring. The cost of graduating this portion of the 3d division of the Northern Cross railroad six and sixty-six hundredths miles in length, is estimated at \$58,237, and the superstructure, at \$6,339 per mile, at \$42,219; amounting to \$110,483, or \$16,569 per mile, including 10 per cent. for superintendence and contingencies. The remaining part of the route to Decatur is so favorable to the economical construction of the road, that there can be no doubt but that the average cost of the whole division will be less than \$9,000 per mile.

The above estimates are predicated upon the value of labor and materials at this time; but I must here express my conviction that, unless too large

a quantity of work is put under contract at once in this State, the former must soon fall, as the fact is notorious that most of the public works in the east are finished, and that great numbers of laborers are compelled to proceed west to obtain employment.

I will here suggest the propriety of deferring putting under contract, or at least laying down, the superstructure of that part of the Northern Cross railroad between Springfield and the Sangamon river, until the completion of the graduation between Jacksonville and Springfield; by so doing, the embankments will have an opportunity to settle, especially in the valley of the Sangamon, and the superstructure, when laid, will be less liable to derangement, and more durable.

To insure the greatest durability of timber, it should be cut in December or January: this is an old rule. There is little doubt, however, but that timber is just as good cut in the summer, provided it is immediately deprived of its bark, and squared so as to take off the sap; but it is difficult to enforce a strict compliance with such a requisition. The timber for the bridges on the first and second divisions Northern Cross railroad will be cut this winter. Models of these important structures, including that across the Sangamon, are now being made, so that there can be no possible error in their construction; the plan is one that admits of the renewal and repair of any of the parts with facility.

The plan of the superstructure of the roads is the same as that adopted on the 1st and 2d divisions of the Northern Cross railroad, viz: mud sills, supporting cross ties, which connect the longitudinal rails. This seems to be the most substantial plan that could be employed consistent with a proper economy, and is capable of ready adjustment.

It would be prudent, I think, at this time, to provide for the future repairs of the roads, by establishing nurseries of timber. The locust is the best adapted to our deep loamy soil, and is the most durable timber for the purpose; there is sometimes a difficulty in making the seeds germinate, but they are very certain to do so if boiling hot water is poured upon them, and they are suffered to stand 24 hours, or until they swell. The cost of 160 acres of land, fencing, ploughing, planting, interest of cost and tending for ten years, could not exceed \$8,000, and it would produce at least 50,000 trees, a sufficient quantity of timber to entirely renew the superstructure on thirty miles of road. The cost of the present inferior timber employed greatly exceeds the above estimate, and is certainly of not one-fourth the value.

It is highly probable that, when it becomes necessary to renew the present superstructure on the Northern Cross railroad, it will be found expedient to relay it upon a continuous wall of masonry, the materials for which can be cheaply transported on the road, in which event less timber will be required.

In the accompanying papers marked A and B will be found the reports of Messrs. Pollock and Hawn, and in those marked C and D, estimates, in detail, of the respective roads prepared for contract. The maps and profiles will be forwarded as soon as it is practicable to execute duplicates.

With high respect,

Your obedient servant,

J. M. BUCKLIN,

*Principal Engineer Western District.*

To the honorable BOARD OF PUBLIC WORKS

*Of the State of Illinois.*



JACKSONVILLE, *October 25, 1837.*

SIR: I respectfully submit the following report, and accompanying map and profiles, which exhibit the result of an examination and survey for that portion of the contemplated Pekin and Bloomington railroad between the former place and Tremont, a distance of nine miles and a half; and also of an experimental line from Tremont to Mackinaw town, a distance of seven miles and a half more.

Agreeably with your instructions, I commenced the survey at Pekin two months ago. It was your expectation that, before quitting the field, I would run an experimental line the whole distance from Pekin to Bloomington, and to complete the location from the former place as far east as Tremont, and as much farther as practicable, this fall. It is probable your expectation would have been realized, had the weather proved favorable; but the operations were considerably retarded by long-continued rains, and still more so by sickness, probably caused by exposure in camping out in wet weather. The party commenced taking sick on the 10th of September, and in a few days after, the hands were nearly all afflicted with the ague and fever, in consequence of which the operations were suspended, or nearly so, and could not be resumed until a new set of hands were procured from a distance.

Previous to commencing the survey, I made a reconnoissance of the country between Pekin and Tremont, and found it more unfavorable for the construction of a railroad than I had anticipated, heavy excavations and embankments being unavoidable. The most prominent obstacles that present themselves between those two places, are the bluff, or an abrupt ascent from the valley of the Illinois river, which commences near two miles east of Pekin, and an elevated ridge intervening between Pekin and the bluff. Also, James ridge, situated about two miles and a half west of Tremont, and the adjoining valley of Dillon's creek, between the ridge and Tremont.

To ascend from Pekin to the high land and overcome the bluff, two routes were presented, viz: "Indian Hollow" and "Hayne's Hollow." Lines were run up each of them to their heads, by which I found the former to be decidedly preferable, on several accounts. Firstly: That its direction is the most favorable, it not exceeding half a mile from a straight line between Pekin and Tremont, whilst the other varies from it nearly two miles. Secondly: That it is longer, and will admit of a grade of fifty feet per mile, whilst the other would require eighty. And thirdly: That the ridge before mentioned as intervening between Pekin and the bluff, presents a less difficulty in that direction than in the other. Hayne's Hollow was therefore abandoned, and the line continued from the head of Indian Hollow eastwardly, crossing Lost creek and other small streams running southerly, and passing James's ridge, where a favorable depression occurs about half a mile south of Mr. James's. From thence, continuing due east the greater part of the distance to Tremont, running on a line between sections of land, and passing through South street, the dividing line between the old and new town of Tremont, so called: the one is the original town, and the other an addition layed out at a subsequent period.

From Tremont the line was continued to Mackinaw town, crossing Prairie creek, Mud creek, and the Mackinaw river. The western bluff of the Mackinaw was descended at a favorable place, commencing two miles from Tremont, in the direction of Stout's mill. The valley at this place is

wide, owing to the junction of the valley of Mud creek. The line passes about a half a mile north of Stout's mill, through a favorable depression in the point of a ridge that makes down between the Mackinaw and Mud creek. It crosses the Mackinaw river near three-fourths of a mile above Stout's mill, and strikes the eastern bluff of the Mackinaw nearly one mile and a half below the town of Mackinaw. We have, then, in order to reach the level of Mackinaw town, to rise 103 feet. To accomplish that in the distance above mentioned, would require a grade of a fraction over sixty-eight feet per mile; and the bluff being much broken, heavy embankments would be required within that distance. The grade could be modified by extending an embankment out from the foot of the bluff, or by selecting that part of the town which lies on the side of the bluff for the entrance of the road. The latter would probably be the least expensive.

The line which I have been describing, bends to the south nearly one mile and a quarter from a direct line between Tremont and Mackinaw; but from the reconnaissance which I have made of the country, I am of the opinion that it is close upon the most eligible route that can be selected. To adopt a more northern route would involve the necessity of encountering the bluffs or banks of Mud creek, which would be attended with considerable expense. On the present line they are avoided, and the stream itself is crossed in the valley of the Mackinaw. But the greatest difficulty, it appears to me, on a more northern route, would be the valley of the Mackinaw. Opposite Mackinaw town, in the direction of Tremont, I would suppose it to be three-fourths of a mile wide, and from that direction to reach the town, which is situated immediately on the eastern bluff, at the height above the valley of near one hundred feet, would certainly be difficult, at a moderate grade, and a reasonable expense. A more minute examination of the country, however, would be proper before the final determination of this part of the route.

A line was projected direct from the western bluff of the Mackinaw, at the point before mentioned, to a depression in James's ridge, nearly half a mile north of Mr. James's residence, passing a little obliquely through the centre of the public square of the old town of Tremont, and passing Dillon's creek at an eligible point; thence direct to the head of Indian Hollow, crossing the intermediate streams and hollows higher up than the former line, and consequently less expensive on account of these not being so deep. The straightness of this line, however, recommends it more than the difference of expense, it not varying to exceed four hundred feet from a straight line for the distance of nearly eight miles.

Few curves will be required, and the radius of none of them will be shorter than one thousand four hundred and thirty feet. A very small proportion of the road will be level, and the grades will range from ten to fifty feet per mile. It was not expected by you that the grades would exceed forty feet per mile, but to adopt a less inclination than fifty feet on some parts of the road would be attended with enormous expense.

The location line commences at the top of the bank of the Illinois river at the foot of Market street in Pekin, and continues out said street for near half a mile, when it bears to the left in the direction of Indian Hollow, cutting obliquely across the lots of one or two additions to the town.

The elevation of the line at the commencement is thirty-six feet above low water mark in the river, and continues level for seven hundred feet. The next one thousand feet, which reaches the eastern boundary of the



public square, is inclined at the rate of ten feet per mile. The whole distance so far is seventeen hundred feet, and nearly level. It will be ample space for the erection of depots and other buildings, and for the transaction of all business connected with the road at that place.

Near the eastern boundary of the public square a grade of fifty feet per mile commences, which is continued to the table land at the head of Indian Hollow, a distance of three miles and twenty-one hundred feet. Thence on the straight line before described, as far as James's ridge, and also from there to Tremont, with the exception of a slight variation to the left between that and Dillon's creek, and also to the right as it approaches the town of Tremont, in order to pass through Park street, instead of passing obliquely across the lots of the town.

A location line was also run from the northern crossing of Dillon's creek, through South street, to the western boundary of Tremont.

Rock for the construction of bridges, culverts, &c., will be inconvenient, unless new discoveries of quarries are made, which I think probable might be if the necessary examinations were made. There are indications of rock along the banks of all the larger streams. Those quarries that are known to exist at present have not required much ingenuity or science to discover them, as the rock most generally projected beyond the surface of the ground. Unless new quarries are discovered, the rock necessary for the construction of the road as far as Tremont will have to be taken from the bluffs of the Illinois river. Mr. Alexander owns a quarry about three-fourths of a mile from the line at the mouth of Indian Hollow, though not of so good a quality as would be desirable.

Timber for the use of the road, I am credibly informed, can be obtained along the valleys of Dillon's creek and the Mackinaw river, at the distance of three or four miles south of the line. There are also a number of good saw mills within the same distance of the line, and in the vicinity of the timber. An abundance of good timber might also be obtained from the vicinity of the bluff, west of the Illinois river, at the distance of four or five miles from Pekin.

The country between Pekin and Mackinaw is chiefly prairie, and well adapted to farming purposes; and between the former place and Tremont, it is pretty well settled and improved. The distance between Pekin and the termination of our lines in Tremont is, by the southern route, ten miles two hundred and sixty feet; the northern route through Park street is nine and a half miles, and four hundred and eighty feet; and the northern route, through South street, nine and a half miles and nine hundred and sixty feet.

The probable expense of graduation and masonry on the first of the above would be one hundred and three thousand nine hundred and seventy-two dollars; or ten thousand three hundred and forty-six dollars per mile. The second would be one hundred thousand two hundred and ninety-seven dollars, or ten thousand four hundred and fifty-seven dollars per mile; and on the third, one hundred and one thousand eight hundred and sixty-four dollars, being at the rate of ten thousand five hundred and twenty-one dollars per mile.

From Tremont to Mackinaw the expense per mile will probably be about the same.

I was assisted in the survey by Mr. Woods and Mr. Hardin; the former made the compass survey, and the latter took the levels. I have the plea-

sure to state that both performed their respective duties industriously and satisfactorily.

Your most obedient servant,

WM. POLLOCK,

*Senior Assistant Engineer Western District.*

JAMES M. BUCKLIN, Esq.,

*Chief Engineer of the Western District.*

### ESTIMATE OF THE COST OF GRADUATION.

NORTHERN ROUTE, THROUGH PARK STREET, IN TREMONT, COMMENCING  
AT PEKIN.

#### *Section 1st.*

Excavation, 70,847 cubic yards, at 35 cents per yard	- \$24,796 45
Excavation, 1,745 cubic yards, at 15 cents per yard	- 261 75
Embankment, 1,445 cubic yards, at 15 cents per yard	- 216 75
Masonry, 25 perches, at \$6 per perch	- 150 00
	<hr/>
	<u>\$25,424 95</u>

#### *Section 2d.*

Excavation, 66,910 cubic yards, at 35 cents per yard	- \$23,418 50
Excavation, 3,755 cubic yards, at 16 cents per yard	- 579 80
Embankment, 316 cubic yards, at 10 cents per yard	- 31 60
Masonry, 16 perches, at \$5 per perch	- 80 00
	<hr/>
	<u>\$24,109 90</u>

#### *Section 3d.*

Excavation, 570 cubic yards, at 14 cents per yard	- \$79 80
Embankment, 7,043 cubic yards, at 20 cents per yard	- 1,480 80
Masonry, 40 perches, at \$6 per perch	- 240 00
	<hr/>
	<u>\$1,800 60</u>

#### *Section 4th.*

Excavation, 13,200 cubic yards, at 22 cents per yard	- \$2,904 00
Embankment, 3,316 cubic yards, at 16 cents per yard	- 530 50
Masonry, 20 perches, at \$6 per perch	- 120 00
	<hr/>
	<u>\$3,554 56</u>



*Section 5th.*

Excavation, 17,716 cubic yards, at 20 cents per yard	- \$3,543 20
Embankment, 12,850 cubic yards, at 25 cents per yard	- 3,212 50
Masonry, 60 perches, \$6 - - -	- 360 00
	<hr/>
	<u>\$7,115 70</u>

*Section 6th.*

Excavation, 7,253 cubic yards, at 20 cents per yard	- \$1,450 60
Embankment, 9,476 cubic yards, at 20 cents per yard	- 1,895 20
Masonry, 143 perches, at \$7 - - -	- 1,001 00
	<hr/>
	<u>\$4,346 80</u>

*Section 7th.*

Excavation, 36,459 cubic yards, at 30 cents per yard	- \$10,937 70
Excavation, 2,471 cubic yards, at 16 cents per yard	- 395 36
Embankment, 1,498 cubic yards, at 20 cents per yard	- 899 66
Masonry, 16 perches, at \$6 - - -	- 96 00
Grubbing - - - - -	- 150 00
	<hr/>
	<u>\$12,478 72</u>

*Section 8th.*

Excavation, 948 cubic yards, at 12 cents per yard -	- \$113 76
Embankment, 6,216 cubic yards, at 20 cents per yard	- 1,243 20
Embankment, 28,042 cubic yards, at 26 cents per yard	- 7,290 92
Masonry, 90 perches, at \$6 - - -	- 540 00
	<hr/>
	<u>\$9,187 88</u>

*Section 9th.*

Excavation, 14,637 cubic yards, at 20 cents per yard	- \$2,927 40
Embankment, 22,162 cubic yards, at 25 cents per yard	- 5,540 50
Masonry, 230 perches, at \$7 - - -	- 1,610 00
Bridge, 40 feet span, \$20 per foot - - -	- 800 00
	<hr/>
	<u>\$10,877 90</u>

*Section 10th.*

Excavation, 2,910 cubic yards, at 16 cents per yard	-	\$465 60
Embankment, 3,272 cubic yards	-	654 40
Masonry, 40 perches	-	280 00
		<u>\$1,800 00</u>

## NORTHERN ROUTE, PASSING THROUGH SOUTH STREET.

The first eight sections are common to the foregoing route.

*Section 9th.*

Excavation, 20,115 cubic yards, at 20 cents per yard	-	\$4,023 00
Embankment, 22,762 cubic yards, at 25 cents per yard	-	5,690 50
Masonry, 230 perches, at \$7	-	1,610 00
Bridge, 40 feet span, at \$20 per foot	-	800 00
		<u>\$12,123 50</u>

*Section 10th.*

Excavation, 5,260 cubic yards, at 16 cents per yard	-	\$841 61
Embankment, 3,000 cubic yards, at 20 cents per yard	-	600 00
Masonry, 40 perches, at \$7	-	280 00
		<u>\$1,721 60</u>

## SOUTHERN ROUTE, PASSING THROUGH SOUTH STREET.

The first three sections are common to the preceding routes.

*Section 4th.*

Excavation, 4,538 cubic yards, at 20 cents per yard	-	\$907 60
Embankment, 6,066 cubic yards, at 20 cents per yard	-	1,209 20
Masonry, 20 perches, at \$6	-	120 00
		<u>\$2,236 80</u>

*Section 5th.*

Excavation, 4,297 cubic yards, at 16 cents per yard	-	\$687 72
Embankment, 32,300 cubic yards, at 25 cents per yard	-	8,075 00
Masonry, 75 perches, at \$6	-	450 00
		<u>\$9,212 72</u>



*Section 6th.*

Excavation, 9,425 cubic yards, at 25 cents per yard	-	\$1,696 50
Embankment, 8,958 cubic yards, at 20 cents per yard	-	1,791 60
Masonry, 30 perches, at \$6	- - - -	180 00
Grubbing	- - - -	100 00
		<hr/>
		<u>\$3,768 10</u>

*Section 7th.*

Excavation, 35,934 cubic yards, at 25 cents per yard	-	\$8,933 50
Embankment, 22,737 cubic yards, at 20 cents per yard	-	4,547 40
Bridge across Lost creek	- - - -	1,500 00
Grubbing and clearing	- - - -	326 00
		<hr/>
		<u>\$15,356 90</u>

*Section 8th.*

Excavation, 22,480 cubic yards, at 18 cents per yard	-	\$4,046 40
Embankment, 3,552 cubic yards, at 20 cents per yard	-	710 40
Masonry, 40 perches, at \$7	- - - -	280 00
		<hr/>
		<u>\$5,036 80</u>

*Section 9th.*

Excavation, 18,040 cubic yards, at 18 cents per yard	-	\$3,247 20
Embankment, 32,066 cubic yards, at 20 cents per yard	-	6,413 20
Masonry, 40 perches, at \$7	- - - -	280 00
Bridge across Dillon's creek	- - - -	2,410 00
		<hr/>
		<u>\$12,350 40</u>

*Section 10th.*

Excavation, 2,249 cubic yards, at 14 cents per yard	-	\$314 86
Embankment, 13,795 cubic yards, at 28 cents per yard	-	3,862 60
Embankment, 1,437 cubic yards, at 20 cents per yard	-	287 40
Masonry, 30 perches, at \$7	- - - -	210 00
		<hr/>
		<u>\$4,674 86</u>

## SUMMARY.

No. of section.	Northern route.	Southern route.	Northern route through South street.
1	\$25,424 95	\$25,424 95	\$25,424 95
2	24,109 90	24,109 90	24,109 90
3	1,800 60	1,800 60	1,800 60
4	3,554 56	2,236 80	3,554 56
5	7,115 70	9,212 72	7,115 70
6	4,346 80	3,768 10	4,346 80
7	12,478 72	15,356 90	12,478 72
8	9,187 88	5,036 80	9,187 88
9	10,877 90	12,350 40	12,123 50
10	1,400 00	4,674 86	1,721 60
	\$100,297 01	\$103,972 03	\$101,864 21

STATE OF ILLINOIS, }  
*Morgan county,* } ss :

Personally appeared before me, Samuel S. Brooks, an acting justice of the peace within and for said county aforesaid, William Pollock, assistant engineer, in the service of the State of Illinois, on the Pekin and Bloomington railroad, who, being duly sworn, certifies, to the best of his knowledge and belief, the foregoing statements and facts in relation to the survey and location of that portion of the above railroad between Pekin and Tremont, contained in his report to the principal engineer of the western district, J. M. Bucklin, are true and correct.

Given under my hand and seal this 4th day of November, A. D. 1837.

SAMUEL S. BROOKS, J. P. [L. s.]

ENGINEER'S OFFICE, JACKSONVILLE,  
 October 27, 1837.

SIR : I herewith submit the result of the preliminary survey of the third division of the Northern Cross railroad, together with a location of that part of the route lying between the town of Springfield and the Sangamon river. Pursuant to your instructions of the 18th of August, I organized a corps for the examination and survey of the route designated, commencing at Springfield and terminating at Decatur.

On the 29th of August, I commenced running a base line from the centre of the east corporation line of the town of Springfield, in the direction with the road leading to Dingman's ferry, to Widow Bilyon's, and from thence down a ravine to Mud lake, and touching the river at a point opposite Smith's branch. The natural descent of this ravine is about eighty feet per mile, which would require a deep excavation, and much of it through rock, to get a line of the maximum grade.



I next run a line from station number 114, on the base line, by the way of Widow Cartwel's down a ravine, passing the head of Mud lake, and touching the river at the point opposite Smith's branch. The descent of this ravine is about seventy-five feet per mile, and would also require a deep excavation, and probably much of it rock, to get a line of the maximum grade.

Commencing at station number 138, where the last line touched the river bottom, I run up a valley lying nearly parallel with the river bottom in a southwestern direction, crossed the road leading from Springfield to Dingman's ferry, diverged into a smaller valley, and running south of Mr. Man's house, terminated at station number 29, on the level with the prairie.

I found that a grade of forty feet per mile could be had on this line, and, for the present, I concluded a further examination unnecessary, as the practicability of the last route was evident. As this was the route ultimately adopted, in pursuance with subsequent instructions, I may here say that its survey to Springfield was completed on my return from Decatur.

Pursuing the examinations, I next proceeded across the Sangamon river to the mouth of Smith's branch, and following the valley of this branch to the southeast corner of section number 10, of township number 16, I found the grade, to the level of the prairie, not to exceed twenty-seven feet per mile. The general direction of the valley is straight, and remarkably well adapted to the construction of a railroad. From this point, I continued the line due east to the valley of Stephenson's creek, four miles west of Decatur. This line is on the north, and running nearly parallel with the Sangamon river. In crossing the numerous branches which empty into the river, many and serious objections present themselves, the most considerable of which were encountered in crossing Clear creek and Long-point slough. Others, nearly as difficult, were met with, and all of them necessarily require a vast amount of labor and expense to bring the line to the proper grade. It appears evident, from the nature and character of the country through which I run, that the line was too near the Sangamon river. This river drains the entire prairie on the north; and to avoid the numerous heads of branches and creeks it was thought important to look for another and better route farther north. This course was rendered doubly necessary from the character of the country in the neighborhood of Decatur. From the valley of Stephenson's creek, on this line, I found it altogether impracticable to proceed in the direction of Decatur. The greater part of the distance for three and a half miles is a succession of valley and ridge, requiring deep cutting and high embankments, and an expense which would not be justifiable if it could possibly be done. An examination of several days in this neighborhood, together with the topography of the country along the greater part of the line, led me to examine further north for a route more feasible and less expensive. At the point of termination on the line run from the east, by the engineer of the eastern district, I commenced and run a line four miles north to Mr. Montgomery's farm; thence, bearing west, I crossed Stephenson's creek, and found that it could be crossed easily within the maximum grade. The whole of this line, from Decatur to the crossing of Stephenson's creek, is good, requiring no very considerable excavations or embankments. This line is out of the true direction, but is the only one, in my opinion, practicable between this line and the one first run. It may be thought advisable to locate the Cen-

tral railroad on that part of this line which lies between Decatur and Montgomery's farm, which would save to the State some thousands of dollars.

Pursuing the route westerly, from Stephenson's creek to my former point of crossing the Sangamon river, I avoided all the heads of branches except Clear creek, which so much embarrassed my operations on the first line. From Stephenson's creek to Clear creek, the line runs through a level prairie, requiring little excavation or embankment, and no culverts or bridges worthy of notice. The crossing of Clear creek on the last line is much better than on the first line, and can, in all probability, be improved still more by taking it still farther north near its head. This last line, so decidedly preferable to the first, can very materially be improved, more especially in the first eight or ten miles after leaving the head of Smith's branch. There is no doubt but a straight line of near twenty miles from the head of Smith's branch can be obtained, and on good ground, well adapted to the construction of a railroad.

On the 27th of September, I returned to Springfield, and on the 5th day of October received instructions to make some preliminary examinations, and to proceed to locate the route from Springfield to the opposite bank of the Sangamon river. In pursuance of these instructions, I examined the route by the way of Keye's branch and Sugar Creek bottom, to the Sangamon river, and crossed it at the mouth of Sugar creek. The grade of this line is easy; but owing to the near approach of the Sugar Creek bluffs to the creek, a very deep, and necessarily expensive, excavation for half a mile was found necessary.

I next examined the Coal Bank route; and commencing on the bank of the river, I followed a small ravine or depression in the direction of Mr. Ridgway's farm, and terminated on the base line at station number seventy-seven. This ravine is short, and the ascent of the natural surface too great to be overcome without an excavation averaging eighteen feet for nearly three-fourths of a mile. This, however, was preferable to the last line, as the excavation was much less. These two lines terminated on the Sangamon river, near two miles above Smith's branch. I did not examine the practicability of the ascent on the north side of the river at the points opposite the last two lines; for I had already found easier and less expensive approaches to the river on the south side in my former examinations; and I could not reasonably expect to find on the opposite side any better route through the bluffs than I had already found by the way of Smith's branch. Satisfied that no route could be found combining so many advantages as the one from the point opposite Smith's branch, by the way of Man's, to Springfield, I proceeded, in pursuance with instructions, to locate on that line. I received no instructions to locate the place of depot in the town of Springfield; and as it is yet unlocated, I have assumed two routes in reference to the difficult points, either of which may be adopted, and have made the estimates which will apply to either, without any additional field work. One route commences at the south end of, and running through Sixth to near Madison street; thence curving slightly, until I obtained a proper course for the head of the valley selected for the location, and run the line to that point. This line, after leaving Sixth street, passes over lots, the property of the heirs of Mitchell; thence through the prairie to Mr. Reed's farm, passing through about one-fourth of a mile north of the starch factory; thence passing through Mr. Lyon's farm, less than a fourth of a mile north of his dwelling house; thence through Mr. King's farm to



the prairie, passing about one hundred and fifty feet in the rear of his house; thence to the head of the valley selected for location. I next started a line from the south end of, and running through Tenth street, near its entire length; thence curving until the course requisite to strike the valley was obtained. From the termination of the curves, the two lines approximate and intersect each other at the head of the valley. For a more particular description of the two routes, I would refer you to the maps and profiles herewith submitted. The expense of construction on the routes is the same. The distance from Springfield to the opposite bank of the river is divided into six sections of a mile each, and one of three thousand five hundred feet.

The estimated cost, including grading, culverts, and cross-ways, for each section, is as follows:

Section No. 1	-	\$864	Section No. 5	-	\$643 00
" " 2	-	223	" " 6	-	15,828 00
" " 3	-	273	" " 7	-	10,010 00
" " 4	-	1,813			

The greater portion of section number seven, lying in the river bottom, and the grade line is supposed to be three feet above high water mark; but as it may vary, the estimated expense of the grading may also vary from the above. The seventh section also includes the proposed bridge across the Sangamon river; the width of the river from bank to bank is two hundred and sixteen feet; the bed of the river is twenty-one feet below the grade line. On the north side appearances indicate a foundation of rock, on the south side the bank is clay and sand; in times of high water the river rises seventeen feet, and spreads over the whole bottom. The question presents itself, whether the arch of the bridge at such times will vent the whole of the water, and whether it may not be necessary to extend the bridge beyond the natural channel of the stream. This question can only be settled by a more thorough investigation than I have been able to bestow. No quarry of stone is as yet known less than eight miles from the crossing of the river, though there are indications of the existence of stone in abundance within a mile, and timber is abundant in the immediate neighborhood.

The route from Springfield to Decatur, taken as a whole, is remarkably well adapted to the construction of the work proposed. That part of it lying between Springfield and the summit level of the prairie, on the opposite side of the Sangamon river, is far better than could have been expected before the examination; and though that portion of the route which has been permanently located is the only practicable one, yet it will be seen from the estimates that its cost of construction will probably be much less per mile than similar works in other States. The whole work, from Springfield to Decatur, a distance of forty-one and a half miles, can undoubtedly be made at an expense very small when compared with the cost of other railroads in the United States. Its location on or near the northern line, which has been thought decidedly preferable to the one first run on the north side of the Sangamon river, would better answer the general interests, though it might not so well serve individual wishes and cupidity as the line first run.

In conclusion, I take great pleasure in stating that my exertions to advo-

cate the public interests have been sustained by the young gentleman connected with my corps, in a manner equally honorable and satisfactory.

All of which I would respectfully submit.

F. HAWN,  
*Assistant Engineer of the Third Division  
Of the Northern Cross Railroad.*

To J. M. PUCKLIN.

STATE OF ILLINOIS, }  
Morgan county. } ss:

Personally appeared before me, Samuel S. Brooks, an acting justice of the peace, within and for the county aforesaid, Frederick Hawn, assistant engineer in the service of the State of Illinois, on the Northern Cross railroad, who, being duly sworn, certifies, that to the best of his knowledge and belief, the foregoing statements and facts in relation to the survey and location of the third division of the Northern Cross railroad, contained in his report to the principal engineer of the western district, J. M. Bucklin, are true and correct.

SAMUEL S. BROOKS, J. P. [L. s.]

*ESTIMATE of the probable cost of grading that part of the 3d division of the Northern Cross railroad, located from Springfield to the east bank of the Sangamon river, Jacksonville, October, 1837.*

No. of feet.	Cubic yards of excavation.	Price per yard.	Cubic yards of embankment.	Price per cubic yard.	Amount for grubbing and clearing.	MASONRY.		Total amount for grading.	Total.
						Perch.	Price.		
		Cents.		Cents.	Dollars.		Dolls.	Dollars.	Dollars.
1	1,308	20	2,107	21	-	20	8 00	864 07	7,203 40
2	331	20	750	21	-	-	-	223 70	6,563 03
3	66	20	1,240	21	-	-	-	273 60	6,612 93
4	2,124	20	4,912	21	50 00	35	8 75	1,812 57	8,151 90
5	2,781	20	414	21	-	-	-	643 14	6,932 47
6	32,532	24	24,814	26	875 00	75	9 25	15,828 07	22,167 40
7	5,490	24	25,367	35	1,000 00	-	-	10,010 21	42,758 16
Aggregate amount					-	-	-	29,655 36	100,439 29

*ESTIMATE of the probable cost of the superstructure for one mile.*

Mud sills, 10,560 lineal feet, at 7 cents per foot	-	-	\$739 20
Cross sills, 10,560 lineal feet, at 5 cents per foot	-	-	528 00
Rails, 10,560 lineal feet, at 8 cents per foot	-	-	844 80
Keys, 2,640 lineal feet, at 3 cents per foot	-	-	79 20
Dressing sills, 1,320, at 12½ cents per piece	-	-	153 33
Dressing rails, 10,560 lineal feet, at 1 cent per foot	-	-	105 60
Laying down track, 5,280 lineal feet, at 23 cents per foot	-	-	1,214 40
22 tons of plates or iron, at \$110 per ton	-	-	2,420 00



980 lbs. spikes, at 16 cents per lb.	-	-	-	\$156 80
880 lap plates, at 10 cents per lb.	-	-	-	88 00
Nails for plates	-	-	-	10 00
				<hr/>
				6,339 33
				<hr/>

*ESTIMATE of the probable cost of the proposed bridge across the Sangamon river, on section No. 7.*

Foundation	-	-	-	-	\$3,000 00
928 perches of masonry, estimated thus :					
Value of stone,	\$0 50	per perch.			
Quarrying,	1 50	do.			
Cutting,	4 00	do.			
Laying,	1 00	do.			
Hauling 8 miles	6 00	do.			
					<hr/>
Value of one perch,	13 00	-	-	-	12,064 00
Wood work, 300 lineal feet, at \$45 per foot		-	-	-	13,500 00
					<hr/>
Total amount	-	-	-	-	28,564 00

*Summary estimate.*

For grading 6.66 miles	-	-	-	-	\$29,655 35
For grading 6.66 miles superstructure, at \$6,339 33	-	-	-	-	42,219 93
For bridge across Sangamon river, at section 7	-	-	-	-	28,564 00
					<hr/>
					100,439 29
Add 10 per cent. for superintendence	-	-	-	-	10,043 92
					<hr/>
Total	-	-	-	-	110,483 21
					<hr/>

BELLEVILLE, ILLINOIS,  
August 11, 1837.

SIR : Whereas the General Assembly of the State of Illinois, at its session held in the years 1836 and 1837, passed an act to establish and maintain a general system of internal improvements; and whereas, a board of commissioners of public works of the State of Illinois, was organized in pursuance of the provisions of said act on the fourth day of April last passed; and it being the determination of the board thus organized to use every exertion to carry into effect the provisions of said act, according to the intent and meaning thereof; and whereas, the people of the State feel a deep interest in the earliest possible commencement and completion of the whole or at least the most prominent works provided for in said act; therefore, with the view of providing a source from which a portion of the necessary aid may be derived,

*Be it resolved*, That our Representatives in Congress be respectfully requested to use their most diligent efforts to procure the passage of a law through the Congress of the United States, making a donation of each alternate section on each side of the most important works contemplated by the act aforesaid, or in the failure of this, to urge the adoption of some other measure which will contribute to the aid of the State in her great undertaking.

*Resolved*, That the president of this board be requested to furnish the Speakers of both Houses of Congress and each of our Representatives of that body with a copy of these proceedings.

I have the honor to be, sir,

Your obedient servant,

WILLIAM KINNEY,  
*President of the Board of Public Works,  
State of Illinois.*

To the Hon. A. W. SNYDER.

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BELLEVILLE, ILLINOIS,  
September 25, 1837.

SIR: As you are aware that Illinois did, at her last regular session, establish one of the most grand and splendid schemes of internal improvement ever adopted by any State or country, and which is as well situated to her locality, agricultural advantages, and commercial necessities, perhaps, as such a system ever was or will be to any country, I would, therefore, beg leave to suggest the propriety of the members in Congress from this State, to ask aid from the General Government, by a donation of land of each alternate section on each side of all the projected improvements aforesaid; not only for the benefit of the State, but to facilitate the sale and improvement of the Government lands lying in the vicinity of said projected internal improvements, both rivers and railroads; and particularly to aid in the completion of the great Central railroad, commencing at the mouth of the Ohio, and connecting with the Michigan and Illinois canal. Such a donation would be carrying out to perfection the same principles of national policy that actuated the Government to grant certain lands to aid in the construction of the abovenamed canal; as the said railroad connected with said canal, will open a grand chain of intercourse in a commercial, agricultural, and military point of view with the northern, southern, eastern, and western States, to such an improvement as that, the utility of which needs no comment. Certainly no member of Congress could object, or refuse the aid of the General Government in facilitating the same.

It is useless for me to say to you, that Illinois is naturally destined to be the garden spot of the world, as it respects agricultural pursuits. Her soil is alluvial and groaning to be relieved by the hand of the industrious agriculturist of the immense wealth which it contains; and that she is a railway by nature, at least so far finished as would be a new wagon-wheel lacking only the tire, compared with other countries, where railroads have been, and are yet intended to be, successfully and usefully constructed. What, therefore, would it be for the General Government to give aid to such a system of internal improvements as Illinois has adopted, so suited to her locality in every point of view, and which, if successfully carried out, will place the whole system of our agricultural and commercial intercourse in an attitude enviable and inviting to the enterprising agriculturist and carriers of



all parts of the world. It therefore seems to me that all that is wanting to obtain aid to accomplish such a desirable object, both for the nation and this State, is to make an effort; and a moment's reflection by that most *honorable* of all national councils, the Senate and House of Representatives of the United States, will satisfy them of the propriety of carrying the projected improvements, particularly that of the Central railroad into complete operation; the accomplishment of which will make the mouth of the Ohio and Mississippi accessible at all seasons of the year, ice or no ice; high or low water; from which the whole products of this State for exportation, can and will be thrown off, and scattered to the four winds of the world; without having, as has been frequently the case, to wait for the spring season, and then come in competition with other countries at the city of New Orleans, who have been prevented in the transportation of their exports, either for the want of water or retarded by ice.

Your early attention to this subject will be well received by the board of public works, who have heretofore addressed you on this subject, and no doubt by the whole community which you represent, and particularly by your correspondent and humble servant,

WILLIAM KINNEY,  
*President of the Board of Public Works,*  
*State of Illinois.*

HON. A. W. SNYDER.

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*Public improvements contemplated in Illinois.*

1. The Illinois and Michigan canal.
2. The navigation of Rock river.
3. The navigation of the Illinois river.
4. The navigation of the Kaskaskia river.
5. The navigation of the Great Wabash river.
6. The navigation of the Little Wabash river.
7. The improvement of the great Western mail road from Vincennes to St. Louis.
8. The Central railroad, from the mouth of the Ohio river to the termination of the Illinois and Michigan canal at "Lasalle," and from thence to Galena.
9. The Southern Cross railroad, from Alton to Mount Carmel.
10. The railroad from Alton to Shawneetown.
11. The Northern Cross railroad, from Quincy to the Indiana State line, in the direction of Lafayette.
12. Branch of the Central railroad, from a point near Shelbyville to the Indiana State line, in the direction of Terre Haute.
13. The railroad from Peoria to Warsaw.
14. The railroad from Lower Alton, by Hillsboro', to the Central railroad, so as to intersect the railroad from Terre Haute at that point.
15. The railroad from Belleville to intersect the railroad from Alton to Mount Carmel, at the nearest eligible point on said road.
16. The railroad from Bloomington to Mackinaw, where it is to branch; one branch to terminate at Peoria, and the other at Pekin.
17. The sum of \$200,000 to be expended in the improvement of roads, the construction of bridges, and other public works, in those counties through which no railroad or canal is provided to be made at the expense of the State.

